DOCUMENT RESUME

ED 094 145 CE 001 645

TITLE	The Adult Enrichment Center's Research Project for Deaf and Hard of Hearing Adults.
INSTITUTION	Lancaster City School District, Pa.; Pennsylvania State Dept. of Education, Harrisburg.
REPORT NO	RR-P-14-2106
PUB DATE	73
NOTE	96p.
EDRS PRICE	MF-$0.75 HC-$4.20 PLUS POSTAGE
DESCRIPTORS	*Adult Education Programs; Audiometric Tests; *Auditory Evaluation; Aurally Handicapped; Communication Skills; Deaf Education; *Deaf Research; *Hard of Hearing; Hearing Therapy; Oral Communication; Retarded Speech Development; Special Education; Speech Handicapped; Speech Pathology; *Speech Therapy

ABSTRACT

Seventeen widely diverse students participated in the speech and hearing therapy program for a total of 420 hours. It was an individualized program utilizing Infra-Code equipment; the primary goal in 12 of the 17 cases was speech production. The remaining five had normal speech and requested auditory training. The bulk of the report consists of individual profile summaries. Also included are the results of audiometric examinations and the subjective evaluations of parents, caseworkers, and students. The audiometric examinations were judged inadequate by professional consultants whose evaluation is included in the document. Accompanying the individual profiles, separate sections detail program objectives, test procedures, and therapy sessions. Sample forms and materials are included in the appendix. It was concluded that the Infra-Code machine served as a type of auditory training device and that student motivation, teacher excellence, and the one-to-one relationship were major factors in the success of the project. (MW)

ED 094145

CE

RESEARCH REPORT

Project 14-2106

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

THE ADULT ENRICHMENT CENTER'S RESEARCH PROJECT FOR DEAF AND HARD OF HEARING ADULTS

The School District of Lancaster

and

Pennsylvania Department of Education 1973

CE001645

PREFACE

The Adult Enrichment Center, which is operated by the Lancaster School District, has established a reputation of excellence in serving disadvantaged populations. This reputation has been recognized by the United States Office of Education when it granted an award to the Center as one of the top ten Adult Learning Centers in the nation. When the Bureau of Educational Research of the Department of Education wanted to expand its Verbatonal Research Program for the Deaf to include adults, a request was sent to us to consider participation in a project designed to help deaf adults.

Since deaf adults suffer many of the same disadvantages of the poor (isolation, low reading levels, poor job opportunities) we felt that this program was consistent with the Center's purpose of serving the disadvantaged. Dr. Albert Di Johnson, Educational Associate of the Division of Research, Bureau of Information Systems of the Pennsylvania Department of Education - visited the Center on January 10, 1972. Assisted by an associate who is a media specialist, Mr. George Morgan, they showed tapes of the Guberina Method as used with children at the Western Pennsylvania School for the Deaf. The machine used in our project was not going to be Dr. Guberina's machine however, but one distributed on a rental basis by a firm called Infra-Code Inc.

At the March 1972 meeting of the Advisory Board to the Adult Enrichment Center approval was given to investigate both the machine and method for teaching deaf adults. Mr. David Zimmerman was appointed by the Board to participate in an investigation of the technology involved in Infra-Code.

On April 5, 1972 Dr. Di Johnson and Mr. Morgan took David Zimmerman and myself to the Infra-Code Offices in Bethesda, Maryland to observe speech therapy sessions conducted by Miss Janet Whitt with adults. Both David Zimmerman and I were impressed by the demonstration and felt that there was nothing in Infra-Code technology or method that was unsafe or harmful for deaf adults, which was one of the major concerns of the Advisory Council.

By June 9, 1972 Dr. Di Johnson had a proposal written which was submitted to the Advisory Board on June 29, 1972. Mr. Terry Arnold, a counselor with the Bureau of Vocational Rehabilitation spoke on the need for adult education among the deaf. After hearing David Zimmerman's report of the trip to Washington, the Advisory Board unanimously approved our assuming a research role with the Deaf.

The budget and proposal prepared by Dr. Di Johnson was not approved by the Board of School Directors at the July 1972 meeting because "there was enough money on the budget to travel around the world." The budget was revised and the project

approved at the August 1972 meeting of the Board of School Directors.

Shortly afterwards, I interviewed Ms Charlotte Hoerner and was convinced that we had a talented and emotionally strong teacher to serve as therapist clinician. Ms Hoerner had experience in teaching in a Community College and had a background in tutoring disadvantaged and handicapped children. She was certified to teach in several states and she holds an M.A.T. degree in English. She was elected to the position of teacher by the School Board in September 1972 meeting.

Final approval for the Project 14-2106 as Ancillary (Part B) Research Project as a Vocational Educational Program came in written form from the Department of Education in October authorizing the School District of Lancaster to operate the program from October 1, 1972 until June 30,1973 for the purpose:

> "to determine whether the use of Infra-sound therapy can enhance hearing and speech functioning in a work preparation, skill building program for deaf adults. If Infra-sound therapy, techniques and equipment developed by Dr. Peter Guberina of Zagreb University and refined by Infra-Code, Inc. Washington D.C. is effective, communication gains which enhance the accumulation of basic work skills and offer clients a wider choice of employment opportunities than now exist."

The budget approved for Project 14-2106 for Research and Demonstration (6) totaled $35,947.00 of which considerably less was spent. This was because we rejected the use of video-taping at the patients request and used sound recordings instead.

Ms Hoerner took a one week training program at Infra-Code Headquarters in Bethesda, Maryland under the direction of Miss Janet Whitt, during the week of October 2-5, 1972. On Charlotte's return to Lancaster, an Advisory Committee was organized to provide guidance to the project consisting of the following people:

Sherry Albert, Interpreter, Representative of Hearing Conservation Center

Terry Arnold, Counselor, Bureau of Vocational Rehabilitation

Dr. John Bonfield, Coordinator Pupil Services, Lancaster School District

Joanne B. Campbell, York, Pennsylvania, leader in the deaf community

Dr. Kirk Fisher, School Psychologist, Lancaster School District

Dr. James Fricke, Audiologist, Research Director of Cleft Palate Clinic

Ms. Charlotte Hoerner, Clinician-therapist for project

Miss Mary Alice Hunter, Director of Speech and Hearing Intermediate Unit 13, Lancaster-Lebanon

William Kemp, Instructor, Pennsylvania School for Deaf Martin Meylin Junior High School

Eugene L. Madeira, Director of Research Project, Adult Enrichment Center Lancaster School District

Rev. Elvin Stolztfus, Pastor Deaf Mennonite Congregation, Ronks, Pa.

The Advisory Committee held its first meeting on October 13, 1972. A lengthy discussion on pre-testing and post-testing of adults taking therapy sessions was discussed. Dr. Fricke offered to bring written recommendations to the next meeting, which were subsequently adopted. Dr. Fisher recommended that the Vineland Social Maturity Scale be used on socialization and the Geist Pictorial Vocational Interest test be used for job orientation guidance. The point was raised, however, that because the norms

for deaf people are so different from those assumed by these standardized tests, the tests would be inappropriate and uninformative. It was determined that each person in the research project would be his own control, that is, measured against himself rather than the group. It was also decided not to screen people according to their hearing ability, but to provide services for all hearing-impaired people, including those who are multiply-handicapped.

Recommendation made concerning recruitment of students were:

(1) mailing letters to 500 deaf in area

(2) newspaper articles

(3) appearance of the therapist on NOONDAY AT 8, with Mrs. Sherry Albert interpreting

(4) contacting all Bureau of Vocational Rehabilitation Counselors.

The Infra-Code Machine was delivered on October 24, 1972. On delivery we were given an addendum to the lease adding special conditions to the use of the Infra-Code Learning System that would have added $3,750.00 to the cost of the system above the $5,400.00 rental being paid the company. This sudden demand was the subject of our second Advisory Committee meeting on October 31, 1972, but the issue later became moot because of a Court Order forbidding business dealing with Miss Janet Whitt and Mr. John Medaris. This court order was in effect until May when the project therapy sessions were concluding.

The Court order allowed us to operate the research project independently of the Infra-Code Company and be as objective as possible. A letter was sent out to the Deaf Community which was written by Mrs. Campbell. On November 3, 1973 Charlotte Hoerner and Sherry Albert appeared on Barbara Allen's TV Program NOONDAY AT 8. Barbara Allen asked the therapists questions about the machine and a picture was shown of Charlotte on one side with Sherry Albert interpreting on the other side of the screen, in sign language. Ms. Hoerner received five inquirires about the project as a result of appearing seven minutes on television.

On November 13, 1972 an Open House was held at 322 East King Street. The School District had built a sound proof room for speech therapy sessions. The deaf and hard of hearing were invited to see a demonstration of the equipment used in therapy sessions. Forty-five adults and teenagers (parents with their children) attended the open house and participated in the demonstration.

The project was now underway. Speech therapy sessions began on November 15. Special thanks must be given to the members of the Advisory Committee who assisted in recruiting the students for this project. Apart from business matters, the project from this point was fully undertaken by Charlotte Hoerner. Writing now and looking back, I believe that the

tremendous gains registered in the project with the students participating must be credited to the teacher who loved and cared and gave herself to students who had been overlooked before in the educational process. The benefits of the program could have been obtained without the machinery. Therefore, as always, the teacher is the key to the progress of the disadvantaged, whether poor, black, Puerto Rican, deaf or blind. The greatest amount of learning takes place only when you have a good teacher.

June 15, 1973

EUGENE L. MADEIRA
Director
Adult Enrichment Center
School District of Lancaster

TABLE OF CONTENTS

	Page
Preface	i
Introduction	1
Objectives	4
Test Procedures	6
Therapy Procedures	9
Individual Profiles and Audiometric Exams	12
Evaluations	
A Note on the Evaluations	62
Audiometric Examinations	63
Results	63
Conclusions	65
Recommendations	65
Results of Evaluative Questionnaire	74
Results of Informal Hearing Test	75
Appendices	
A. "Skits" from the Infra-Code Children's Manual	76
B. Examples of sound exercises	77
C. Picture exercises	78
D. Short Common Sentences	79
E. Poems	80
F. Individualized Lessons	81
G. Speech Discrimination Tests- Gross & "Fine"	82
H. Evaluative Questionnaire	83
I 31-Item Speech Production Test	84
J. Infra-Code Materials Sheet	85
K. Interest Inventory Form	86
L. Daily Record Form	87

INTRODUCTION

From November 13, 1972 until May 18, 1973, seventeen students and I worked in a speech and hearing therapy program for a total of four hundred and twenty hours. Our students ranged in age from sixteen years old to ninety. They had from serious to profound hearing losses, their speech abilities ranged from normal to mute, five had multiple disabilities, and one was hydrocephalic. With such a heterogeneous group it would have been impossible (and certainly not desirable) to have implemented one set methodology. It was therefore primarily an individualized program.

Our students were all volunteers, who contacted us in response to over one hundred recruitment letters sent out by the Adult Enrichment Center, supplemented by newspaper articles, a TV appearance, and brochures. Most of our therapy sessions were one half an hour long, some people came once a week, others worked with the machine for eight hours per week. It was possible to test only fifteen students for hearing pre- and post-therapy, and thirteen for speech pre- and post-therapy.

The equipment we used in this project was marketed by Infra-Code Inc. The machinery consists essentially of four primary parts: a device which is capable of amplifying from 1 cps to 8,000 cps (what it can do other than that no one seems to know), a microphone, a vibrator and headphones. The therapist speaks into the microphone and her voice is transmitted through the machine to the students by means of the headphones and the vibrator, which is usually held in the hand. (Note: This was <u>not</u> a Verbotonal project. Apparently there has been much confusion between "Infra-Code" and "Verbotonal." But the latter term refers specifically and only to the original and continuing work of a Yugoslavian researcher, Dr. Petar Guberina, who pioneered infra-sound therapy [<u>Pennsylvania Project to Rehabilitate Deaf and Hard-of-Hearing Children</u>, an interim report: DiJohnson, Craig & Craig].)

The bulk of this report consists of individual profile summaries. Included therein are both the results of professional audiometric exams and also subjective evaluations sent to us by parents, caseworkers, and students themselves. These subjective comments provide an important understanding of the over-all human impact of the therapy sessions. They are especially useful in

view of the fact that the objective testing measures provided for us were poorly coordinated, and judged inadequate by our professional consultants (refer to the Audiometric Evaluation Section and the Speech Evaluation Section). A further benefit of including these comments is that the reader of each report may judge for her/himself the significance of the students assertions. For example, there appears to be an inconsistency between Student C's statements that "I seem to hear more with my aid than I do with the therapist's machine" and "I sincerely feel that this [therapy] is a 'break-through'." Should one interpret from this that had I used the standard Infra-Code methodology (as I did with this particular student) while she merely wore her hearing aid, we would have achieved the same "break-through"?

Preceding the individual profiles, separate sections detail our Objectives, Test Procedures and Therapy Procedures, and sample forms and materials are included in the Appendices. We hope that this report provides an ample understanding of every aspect of the program.

Based on the comments made by students and parents (written as a result of the Evaluative Questionnaire, Appendix H), the Audiometric Reports, observations, it would appear that the Infra-Code machine served as a type of auditory training device, whereby students attempted to interpret and utilize sounds which they had not been "aware" of before. I feel the machine is like any other teaching device: it isn't the device itself which matters so much but the relationship which exists between the teacher and student. For the most part, our students were highly motivated and they were grateful for the one-to-one relationship with the teacher. To a deaf person, being recognized as a real, important human individual--not a "defective product"-- and communicating with someone in significant personal ways are rare experiences. I was amazed, after enrolling in a sign language course late in the year, to find how enthusiastic and grateful hearing impaired people are when a hearing person takes time to learn the manual system. Like other "minority" groups, hearing-

impaired people have been segregated, discriminated against, and neglected. Each deaf individual has suffered in his own way, and each has specialized needs that the hearing "majority" now ought to meet. We are proud to say that our program this year not only gave auditory and speech therapy, but also was able to help in meeting other concrete needs for many of our students. For example, we tutored Students A, E, and P in reading, Student B in English and other high school subjects, we requested BVR assistance for Students C and K, wrote lettersof recommendations for Students B and N, helped Student H to find a job and to get his visa-status changed,and more, as listed in the Individual Profiles.

OBJECTIVES

Our objectives, and therefore our procedures, differed with the needs, interests and requests of each student. Of the seventeen students involved in the program, all but five were pre-lingually deaf. Therefore, with these fourteen students we worked primarily on speech production. The remaining five had normal speech and requested auditory training.

Our further objective was to document the progress made by each student in the areas of speech and hearing. The testing measures we used for these evaluations are discussed on pages 6 to 8.

Five of our group were aphasic and one was hydrocephalic with just about a total loss of hearing. Our students ranged in age from 16 to 90, with hearing losses varying from profound to serious. Because of the wide diversity within the group as regards age, hearing loss, intelligence and extent of attendent disabilities, each student became his own control in regard to the research.

During the course of the therapy work with the aphasic students, the stimulus material was presented in as many ways as possible--manually, visually--by means of pictures, by lip-reading and in writing. Our objective was to improve every level of communication.

Throughout the year, we tried to work on as personal a level as possible. We individualized materials by sending out a questionnaire [see Appendix K] and we encouraged spontaneous communication before, during, and after each therapy session. Indeed, we tried to help in any way we could whether it were to help secure a job, request Bureau of Vocational Rehabilitation assistance or, in the case of

Students B and N, we gave them an opportunity to improve their secretarial skills in another program offered by the Adult Enrichment Center, the Adult Secretarial School. These two girls, sisters, drove from York each week-day morning, and divided their time between the Research Project and the Secretarial School. Student B, a senior in high school, took her required English course with the therapist, who is certified to teach secondary English in Pennsylvania. She was tutored on a one to one basis whatever subject she asked for help in. She graduated on June 3, having been named to the Honor Roll for the first time--her grades rose in every subject. Additionally, she typed this entire report.

TEST PROCEDURES

There was considerable confusion concerning the "Research" aspect of this program. No test measures had been given to us until after the beginning of the program. When we had been in operation for three weeks, a representative from the Department of Education and a representative from the Infra-Code firm decided on the Speech Production Test which we subsequently used. (See Appendix I) These test materials were received the second week in December. In the instructions for administering this test, the therapist had been told "stimulus should be said two times, Instructor says the sound first--then the student." The speech judges felt the reliability of this type of test was questionable (see section on Speech Evaluation) We were also to give a "Speech Discrimination Test (Fine)" that was to be administered by the therapist "with aids if they are worn, without lipreading clues, and the stimulus should be said twice." (See Appendix G) The intensity of the therapist's voice, of course, had to vary with the deafness of each student. Since most of our students were profoundly deaf, it was necessary to give the words in an extremely loud voice or we would not have been able to administer the test at all. From word to word, it was difficult to maintain the same intensity of voice. However, we tried to re-test in approximately the same way, and have indicated in the case studies whether the test words were given in a normal, moderately loud, or very loud voice. This test is referred to in the case studies as the Informal 15-Item Speech

Discrimination Test. A "Speech Discrimination Test-Gross" had also been decided upon (see Appendix G). This was not administered pre and post.

In October, 1972, in lieu of established controls and measures for the program, our Advisory Board was presented with a Test Protocol by one of its members, and this accepted by the Board as a whole with the stipulation that the testing be divided between two agencies. Subsequently the test protocol (given below) for some reason was not adhered to by the agency which had recommended it, which resulted in some students being given some tests, and others not.

AUDIOMETRIC TEST PROTOCOL

"Following are my recommendations regarding patient-examination protocol. It should be understood that not all suggested test procedures are applicable for all patients. The profoundly deaf would not be testable on several of the below items.

All tests should be given both via free field, and via earphones. If the propoganda put out by Infra Code has validity, there could be difference between the thresholds derived by these two methods of sound stimulation.

In order to minimize as many variables as possible, I further recommend that all pre- and post-testing be conducted at the same location. The audiometric facility chosen should confrom to rigid standards of calibration, and should possess an adequately sound-treated environment for testing purposes. The audiologist should possess national certification.

Pure tone thresholds
  a. air
  b. bone

Speech reception thresholds

Speech discrimination scores

Bekesy thresholds
  a. pulsed
  b. continuous

Additionally, I recommend that we secure recorded speech samples of each patient. Recording should be done on good quality magnetic tape recording equipment, under fairly rigid control of ambient noise. All recording should be done with the same machine, and at a constant tape speed. Two items are recommend for this facet:

50-word intelligibility list
The Rainbow Passage"

Except in the case of the audiometric analysis, we only recorded a pre-test in the case studies when we had a post. There is only some uniformity in the number and kinds of tests administered to each student.

Thirteen students did the 31-Item Speech Production Test pre and post, five of these same thirteen students also did the W-22, 1-A word list (administered without the stimulus word) pre and post, and additionally, three of this same group recorded the Rainbow Passage, pre and post. Fifteen students were administered the Informal Speech Discrimination Test pre and post.

However, every student was tested by a professional local audiologist at the beginning of the research study. An audiogram was made, and where possible, speech reception thresholds were recorded as well as speech discrimination thresholds. All but two of the seventeen students involved in the program during the course of the year were retested when they terminated their work with us. Four students went to a local hearing center for testing and eleven went to a nearby clinic.

Each student was his own control.

THERAPY PROCEDURES

The therapy procedures differed with the needs, interests and requests of each student. With twelve of the seventeen students we worked primarily on speech production, with the remaining five we worked on auditory training. A record of each therapy session was made, Appendix L.

Essentially, the auditory training procedure consisted of giving a stimulus sentence to the student and eliciting a response. [see Infra-Code material sheet, Appendix J] The stimulus was received by the student through the vibrator, and through the headphones at a frequency which the student had indicated was best. At first these sentences were given with the assistance of lip-reading, but it then became the goal of the therapist to elicit the response without the benefit of lip-reading. The stimulus sentences were given as rapidly as possible, to maintain a peak of concentration. During a half-hour therapy session, the Infra-Code manual recommends that only 30 sentences be used again and again so that these sound patterns are thoroughly "fixed" in the student's mind.

Although this machine provides for elaborate settings (combinations of peaks, passes, cut-offs, roll-offs, etc.) at no time did the therapist find a need for settings other than 600-1,000 and 2,000 cps. pass. Differences between settings (for examples, 1,000 pass with peaks either above or below) were always said to be negligible and, in fact, no difference in the performance of the student was noticed regardless of whether the setting was 1,000 pass or 1,000 pass with peaks and/or cut-offs or roll-offs. Surprisingly, with many students,

they could not indicate a preference for either 600 or 1,000. At no time did the trainer from the Infra-Code firm use less than 600 cps when working with any of our students [including students D and G] [with nearly total losses]. She most often worked at a frequency of 1,000.

The Infra-Code sentences [see Appendix J] proved to be too long and sophisticated for several of these students, so we substituted short, everyday sentences as in Appendix D as well as using what was suitable from the Infra-Code children's manual [see Appendix A]. These children's "skits" as they are called had the advantage of providing the repetition of sounds, and the disadvantage of being boring.

In our speech therapy, we used individual cards [Appendix F] which were made up from an interest inventory questionnaire [Appendix K]. With exception of the aforementioned "skits", all the speech materials were made or gathered by the therapist. One of the best devices proved to be the Bell and Howell Language Master picture--cards. The student would go through the words first with the therapist, and then without the therapist and finally we would put them into sentences. Interestingly, the aphasic students who knew the manual system gave clearer responses when the sentence was signed to them and heard through the headphones, than when they merely read it and heard it through the headphones. (The sentences were simple, and they could read them.)

For specific problems, such as the ST sound or CH sound, we would briefly go over lists of word with these sounds in them, or sentences [see Appendix B]. This tends to be boring drill work, so we went through them quickly each time, and then put them away.

Poems, with their endless repetition of sounds both within the

lines and at the ends of lines, proves to be interesting speech teaching devices. Particular students were very motivated when using these [Appendix E].

Student A
Age- 17
Duration of Deafness- Since Birth
Loss- Serious, bilateral sensori-neural loss
Aid- Worn intermittently for the last 12 years. Reports made at ages 13, 14, and 15 reveal that he refused to wear the aid, and apparently he was allowed to go without it by his parents. Worn presently in the right ear.
Records-
Indicate student is Aphasic; essentially a non-reader at 10.

Number of contact hours at Adult Enrichment Center- 21 total
1/2 hr, twice/wk
November to May

PURE TONE SUMMARY (500.1,000.2,000) Air: RE 80 LE 55

(Note: No SRT or Discrimination was obtainable from this student by standard testing procedure. See Audiologist's evaluation.)

Therapist's comments:

"Student could respond to most simple stimulus words, but auditory memory was extremely short. Responses seemed to be clearer when the concept was presented both manually and vocally. Student did quite well in the actual lesson, but there seemed to be little carry over. When this student "talked" to me after the lesson, I rarely understood what he said. On the positive side, he seemed to enjoy the sessions and did definitely want to communicate with me--on one occasion he brought pictures of his house and dog and talked clearly about them. I personally feel that changing (signigicantly) such ingrained patterns of speech would be nearly impossible at his age."

Parents' comments:

"They indicated on the questionnaire that they felt his hearing had improved, they noted new words in his vocabulary, felt he used more sentences rather than isolated words or phrases, and also indicated that he vocalized more.

They further indicated that other relatives and friends has noted that he was speaking more.

In answer to the question--have you noted any changes besides improvement in speech and/or hearing?, his mother responded..."his behavior seems much better, he seems much more grown up, his age could have something to do with it as he is 18 years old."

This student started work for the first time on May 7, 1973, at a local dental supply company.

SPEECH AND HEARING DIVISION

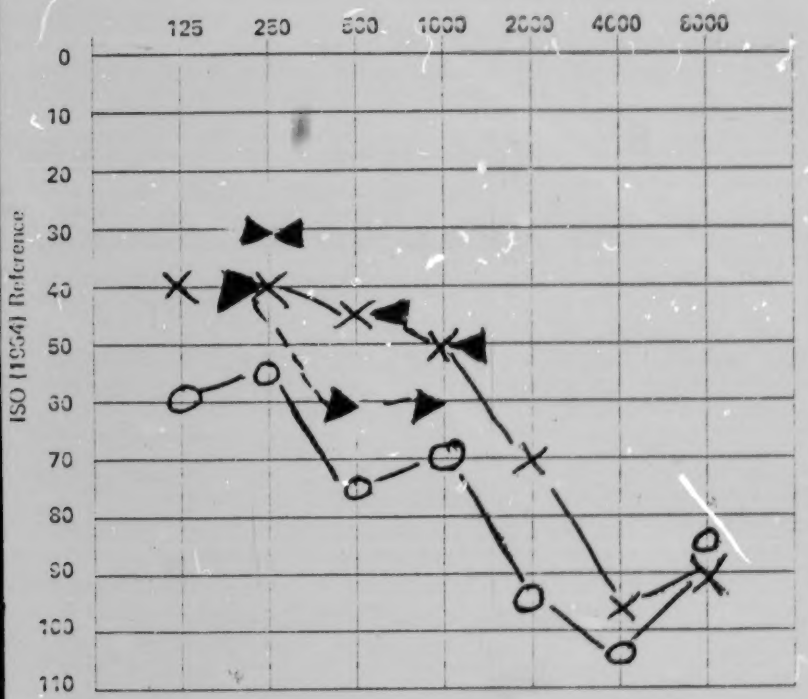
AUDIOMETRIC ANALYSIS

Name Student A Age 17 Date Nov. 15, 1972

Address _____ Telephone _____

Referred b. _____ (Infra Code) Examiner _____

PURE TONE AUDIOGRAM
Frequency



AIR
RE: O - Red
LE: X - Blue

BONE
RE: > - Red
LE: < - Blue

AIR MASKED
RE: Δ - Red (LE masked _____dB)
LE: ∇ - Blue (RE masked _____dB)

BONE MASKED
RE: ⟩ - Red (LE masked _____dB)
LE: ⟨ - Blue (RE masked _____dB)

FREE FIELD – □

PATIENT'S REPORT
Hearing: Constant ___ Varies ___
Hearing Today: Better ___ Same ___ Worse ___
Cold Today: Yes ___ Slight ___ No ___
Tinnitus: RE _____
LE _____

WEBER RESULTS
RE _____
LE _____
Unlcc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS
Good ___ Ave. ✓ Poor ___
TEST RELIABILITY
Good ___ Ave. ✓ Poor ___

PURE TONE SUMMARY
Average Loss 500 - 1000 - 2000 cps.
Air: RE 80 LE 55
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY
SRT
RE 110+ LE 110+ Free Field —
DISCRIMINATION
RE — LE — Free Field —
TOLERANCE LEVEL
RE ___ LE ___

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Inconsistant responses.
Could not obtain SRT in verbal or written responses of patient. Patient can not spell.

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

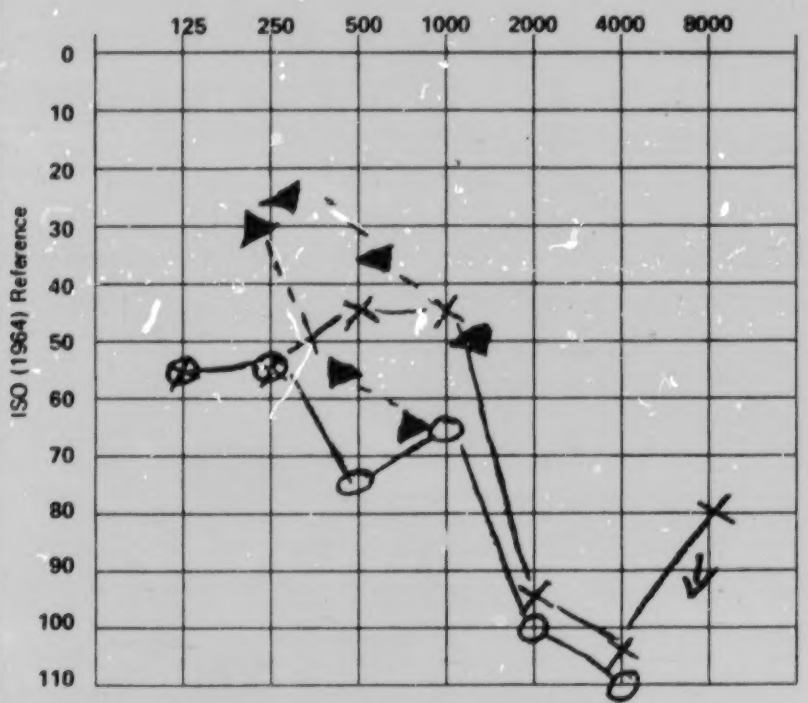
Name Student A Age 17 Date May 5, 1971

Address _____ Telephone _____

Referred by (Infra Code) 2nd Test Examine _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red
LE: X - Blue

AIR MASKED

RE: Δ - Red (LE masked _____ dB)
LE: ∇ - Blue (RE masked _____ dB)

BONE

RE: > - Red
LE < - Blue (not obtained in the same way as pre-test)

BONE MASKED

RE: ▶ - Red (LE masked _____ dB)
LE: ◀ - Blue (RE masked _____ dB)

FREE FIELD - ☐

PATIENT'S REPORT

Hearing: Constant ___ Varies ___
Hearing Today: Better ___ Same ___ Worse ___
Cold Today: Yes ___ Slight ___ No ___
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ___ Ave. ✓ Poor ___

TEST RELIABILITY

Good ___ Ave. ✓ Poor ___

PURE TONE SUMMARY

Average Loss 500 · 1000 · 2000 cps.

Air: RE 80 LE 60
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT
RE 85 LE 80

DISCRIMINATION
RE 64% LE 72%

TOLERANCE LEVEL
RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

More consistent responses than on previous test
SRT and Discrimination scores obtained by patient circling list of words. He could not find the word in the whole list, but could if choices were limited to three or four words.

Student B
Age- 19
Duration of Deafness- Since 2 years old.
Loss- Severe bordering on Profound
Aid- Worn for last 11 years in right ear (worst ear)

Records- [note from her mother]...."her hearing loss was not determined until she was about 8 because doctors and psychologists were almost certain she was imitating [her sister, who is also hearing-impaired] because they were together always.

We were convinced it was her hearing after we tried her in kindergarten, then first grade--she would not talk for anyone so we put her in a special speech therapist school when her sister was put in 6th grade (public school). _____ started to talk the first day for wonderful teacher [_____] under [_____], child psychologist. Before all this she was put in Philadelphia University Hospital for three days for tests--including IQ which the doctors found was above average as was [her sister's]. Their downfall was public schools, teachers were not equipped to teach handicapped children.

A hearing aid was put on [_____] at 8 years old."

Number of contact hours at Adult Enrichment Center- 112 total
8 hours per week
Feb. 13 to May 18

@ primarily at a frequency of- 1,000 cps

PURE TONE SUMMARY (Three frequency average) Air: RE 92 LE 93

Therapist's comments:

"I think the following comments speak for themselves. In five years of teaching, I have not been so proud of a student as I have been of_____. Bright and interested in everything, she had been entirely passed over in High School, because of her handicap. From February to May she spent every week-day morning with us, dividing her time between the Deaf Research Project and the Secreterial School. As I mentioned in the section on Objectives, she typed this entire report."

Mother's comments:

Her mother felt her speaking had improved significantly--she noted addition of new words in her vocabulary, clearer, more precise speech, and more vocalization. She also felt her hearing had improved, stating that "_____ has never heard water running into the washer before and now she does, and other things that have low sounds."

"_____'s counselor at school has seen quite a change in her. She will sit and converse more now. She tries more to advance herself as to her likes and dislikes. She is more interested in reading too--I believe she understands words better. [The therapist] and her other teachers have been an excellent help to her.

Sister-in-Law(also case-worker's) comments:

"Prior to the course, to gain _____'s attention when her back was turned it was necessary to touch her. She now hears her name."

"She now uses the dictionary, uses more sentences rather than isolated words, speaks more slowly and she is definitely vocalizing more."

"My husband also feels ___has become more communicative and less frustrated when people do not understand her."

"I think _____has especially gained a great deal from this program. She has developed a sense of self-confidence. She also feels appreciated as an individual. Her school experience in the past was one of being passed over. The one to one situation with her therapist has helped her feel appreciated."

"She seems to take a keener interest in her studies since she now understands many things which escaped her in the past. She is now using the dictionary to learn words she reads but does not understand. Also, simply traveling by herself has helped increase self-confidence."

"Finally, as a credit to the therapist, _____has found a person who she feels is warm, understanding and patiently listens to what she has to say. I am only sorry _____has no interest in further education and I feel this is due to past frustrations in public education."

Guidence counselor's comments:

"I can't tell whether the hearing or speech has improved, but I find it much easier to converse with _____. She seems to make clearer sounds when she speaks and is much more confident that she will be understood. She definitely vocalizes more."

"I feel the program was most beneficial for _____. The individual attention and therapy did much to inflate her ego and also to improve her ability to find success in conversation. She is intelligent.... I'm hoping Vocational Rehabilitation will help place her in a position... I'm sure _____benefitted in many ways which only time will tell!

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

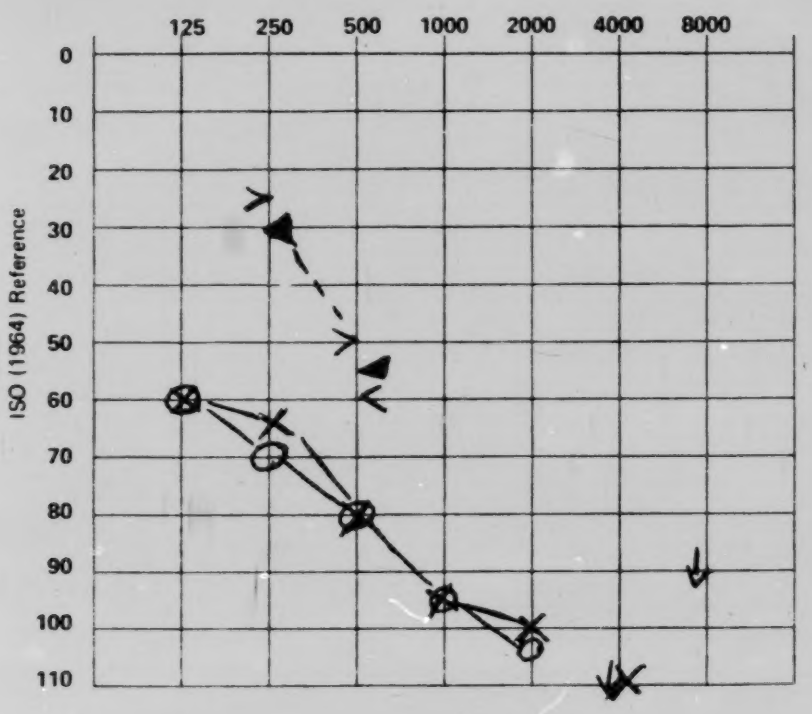
Name Student B _____ Age 19 Date Feb. 15, 1973

Address _____ Telephone _____

Referred by Infracode study Examine _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red
LE: X - Blue

AIR MASKED

RE: △ - Red (LE masked _____ dB)
LE: ▽ - Blue (RE masked _____ dB)

BONE

RE: > - Red
LE < - Blue

BONE MASKED

RE: ▶ - Red (LE masked _____ dB)
LE: ◀ - Blue (RE masked 90+ dB)

FREE FIELD - □

PATIENT'S REPORT

Hearing: Constant ____ Varies ____
Hearing Today: Better ____ Same ____ Worse ____
Cold Today: Yes ____ Slight ____ No ____
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ____ Ave. ✓ Poor ____

TEST RELIABILITY

Good ____ Ave. ✓ Poor ____

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE 91 LE 89
Bone: RE - LE -

SPEECH AUDIOMETRIC SUMMARY

SRT
RE 100 LE 102

DISCRIMINATION
RE not tty LE not tty

TOLERANCE LEVEL
RE _____ LE _____

Type of Loss sensori - neural Extent of Loss _____

Comments and recommendations:

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

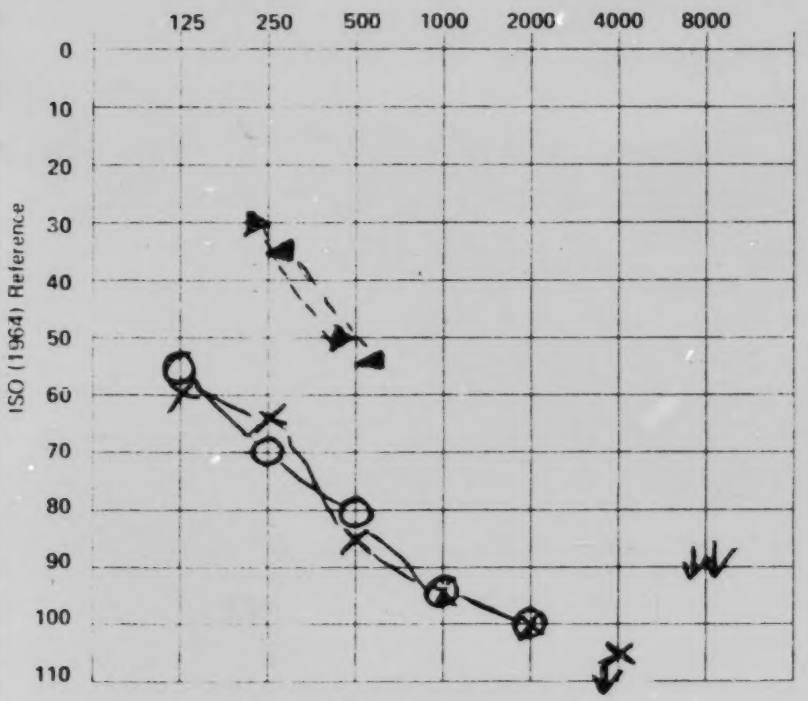
Name Student B Age 19 Date 5-22-73

Address Telephone

Referred by Infra Code (2nd test) Examiner

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O Red

LE: X Blue

AIR MASKED

RE: Δ Red (LE masked ____ dB)

LE: ▽ Blue (RE masked ____ dB)

BONE

RE: > Red

LE: < Blue

BONE MASKED

RE: ▶ Red (LE masked 90 dB)

LE: ◀ Blue (RE masked 90 dB)

FREE FIELD ☐

PATIENT'S REPORT

Hearing: Constant Varies

Hearing Today: Better Same Worse

Cold Today: Yes Slight No

Tinnitus: RE

LE

WEBER RESULTS

RE

LE

Unloc.

BEKESY RESULTS: Type

TEST CONDITIONS

Good Ave. ✓ Poor

TEST RELIABILITY

Good Ave. ✓ Poor

PURE TONE SUMMARY

Average Loss 500 1000 2000 cps.

Air RE 92 LE 93

Bone: RE LE

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 89 LE 92

DISCRIMINATION

RE - LE

TOLERANCE LEVEL

RE LE

Type of Loss ____ Extent of Loss ____

Comments and recommendations

Student C
Age- 46
Duration of Deafness- Since about 11 years old
Loss- Profound
Aid- Worn in right ear for the last 26 years
Records- Indicate that this student had a stapdectomy performed on the left ear.

Number of contact hours at Adult Enrichment Center- 15.5 total
15 1/2 hour sessions
[illegible] hour sessions
Jan. to May

@ frecuency of- 1,000 cps

PURE TONE SUMMARY (500.1,000.2,000) Air: RE -- LE 105

Audiologist's comments:

"Patient wears hearing aid in right ear. Recommend that aid be worn in left ear."

Therapist's comments:

"We worked almost exclusively with the left ear, to restore intelligibility. Prior to working with our machine, she claimed that although she had sound in her left ear, she had no speech discrimination in that ear. She worked extremely hard, concentrated to the utmost."

Student's comments:

"Relatives and friends noted the ability to use the telephone with greater success than I have been able to use it for several years. I can hear my family call to me from another room, and know the sound I heard was a voice not a slam or a bump as I did not know before the therapy sessions."

"After some of the sessions I experienced dizziness the following evening. I felt this was due to the strain and tenseness I subjected myself to in trying too hard to make the therapy work. I also found outside noises distracting as I seemed to become more aware of all sounds. I learned to ignore these distracting sounds (picked up by my hearing aid) and concentrate on the voice I was trying to comprehend."

"I seem to hear more with my aid than I do with the therapist's machine. It is difficult to describe what this therapy has done for me. My deafness is so severe the benefits have been difficult to evaluate. It must be remembered that a plate filled with food is not so important to a well-fed man as is a crust of bread to a hungry beggar. In the same manner help which a normal person would find insufficient to evaluate can be very important to one as deaf as I am."

"I sincerely feel that this a 'break-through'. This therapy has been compared by a professional man in his 'put down' to me with Chiropractor's treatments."

"Following my second therapy session I found the noise in the classroom distracting. This was simply my awareness of the excessive noises, not so much that I heard more sound but I was aware of sounds I had blocked out before. I had to learn to reblock unwanted sounds from my attention span. The therapy seems to enhance my perception by providing sounds with more clarity. Rather than syllables and words running together to form a mass of sound, each is distinct and clear."

"I did have one side effect--on 3 separate occasions my inner ear seemed to be disturbed so that I had dizziness and upset stomach. (I have learned through past years to identify the squemish dizziness my family doctor first informed me was from inner ear problems.) I have not had any of the attacks for the past four years previous to the sessions. Now to have three in as many weeks--I could only conclude that my ears are acting up again from the therapy. These recent attacks subside quicker and are not so severe as the ones I had some years ago."

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

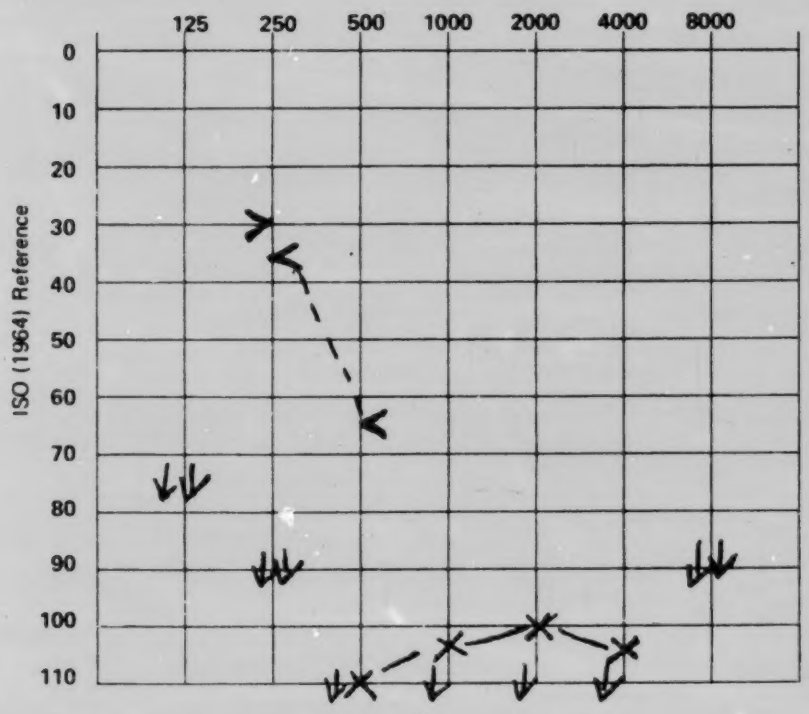
Name Student C Age _____ Date Feb. 7, 1973

Address _____ Telephone _____

Referred by Infrecode Study Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red
LE: X - Blue

BONE

RE: > - Red
LE: < - Blue

AIR MASKED

RE: Δ - Red (LE masked _____ dB)
LE: ▽ - Blue (RE masked _____ dB)

BONE MASKED

RE: ▶ - Red (LE masked _____ dB)
LE: ◀ - Blue (RE masked _____ dB)

FREE FIELD - □

PATIENT'S REPORT

Hearing: Constant ____ Varies ____
Hearing Today: Better ____ Same ____ Worse ____
Cold Today: Yes ____ Slight ____ No ____
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ____ Ave. ✓ Poor ____

TEST RELIABILITY

Good ____ Ave. ✓ Poor ____

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE — LE 105
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE — LE —

DISCRIMINATION

RE — LE —

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss bilateral sensorineural Extent of Loss profound

Comments and recommendations:

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

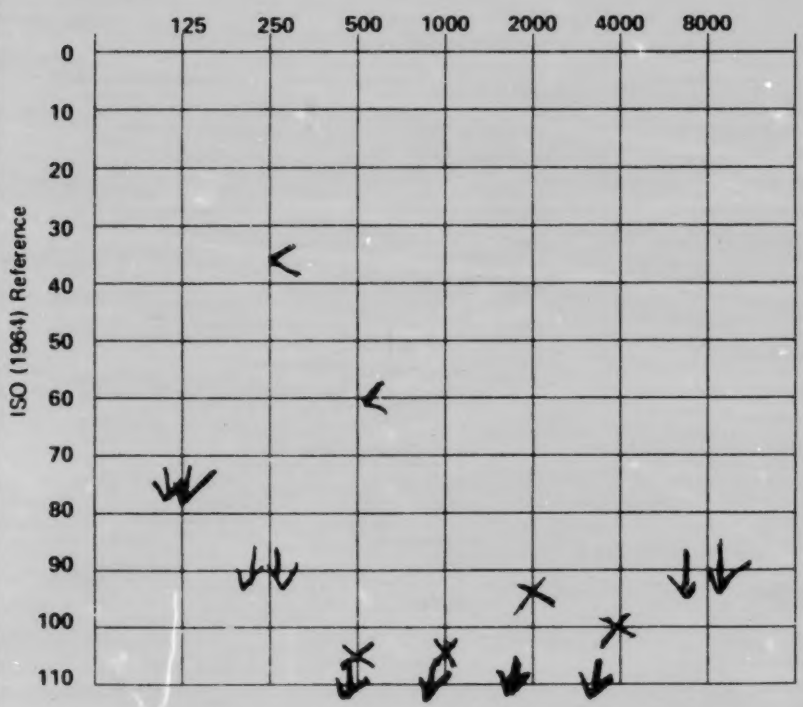
Name Student C Age _____ Date May 19, 1973

Address _____ Telephone _____

Referred by Infracode Study (2nd Test) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red
LE: X - Blue

BONE

RE: > - Red
LE < - Blue

AIR MASKED

RE: Δ - Red (LE masked _____ dB)
LE: ▽ - Blue (RE masked _____ dB)

BONE MASKED

RE: ▶ - Red (LE masked _____ dB)
LE: ◀ - Blue (RE masked _____ dB)

FREE FIELD - □

PATIENT'S REPORT

Hearing: Constant ____ Varies ____
Hearing Today: Better ____ Same ____ Worse ____
Cold Today: Yes ____ Slight ____ No ____
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ____ Ave. ✓ Poor ____

TEST RELIABILITY

Good ____ Ave. ✓ Poor ____

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE — LE 105
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE — LE —

DISCRIMINATION

RE _____ LE _____

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss Bilateral sensori neural Extent of Loss profound

Comments and recommendations:

Twelve spondee words were presented via sight and sound (110dB). When these words were presented at 110dB by sound only, the patient could repeat one-third of the words correctly.

Patient wears hearing aid in right ear. Recommend that aid be worn in left ear.

Student D
Age- 26
Duration of Deafness- Since 10 years of age.
Loss- Profound--Total
Aid- Worn for last 9 years, right ear.
Records- Indicate student is hydrocephalic. Hearing has become progressively worse in last two years.
Number of contact hours at Adult Enrichment Center- 11 total
1/2 hour per week
@ primarily a frequency of- 1,000 cps

PURE TONE SUMMARY (Two frequency average) Air: RE NR LE NR

Audiologist's comments:

"This student presented no response (NR) to maximum output of the audiometer by air conduction at any of the test frequencies....
"Speech threshold and discrimination scores were naturally absent."

Therapist's comments:

"I simply do not believe that this student's hearing could be helped in any significant way. The 22 weeks we worked together were frustrating and discouraging for both of us. He had what I would consider to be normal speech."

Vocational Evaluator at Place of Employment:

"It is very difficult to notice change in _____'s hearing and speaking. He is a very quiet person and does not readily make conversation. To a small degree, we have noticed some improvement in the clarity of his speech and also that he tends to use more complete sentences rather than short answers. _____ is, at times, discouraged by the slowness of his progress. I do not know whether he will continue the program."

Student's comments:

This student indicated on the questionnaire that he would not participate in the program next year, and that he had observed no significant improvement in hearing. However, he indicated that he would recommend the program to someone else.

HEARING CENTER
HELP HIM HEAR

AUDIOLOGY AND SPEECH REPORT

Name Student D Sex M Age 26

Address ___, Lancaster, Pa County Lanc. Birthdate 8/28/46

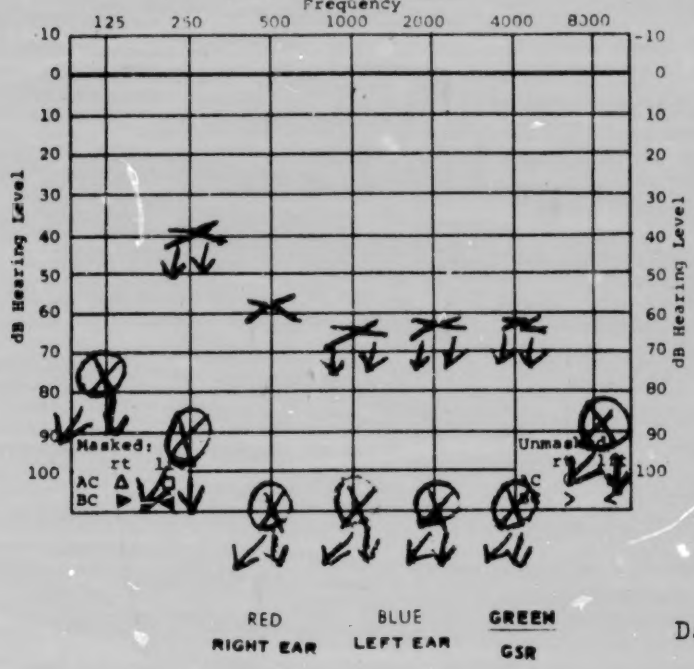
Father _____ Mother _____ Test Validity: good____ fair ___ poor___

Home Telephone _____ Referred by _____

School _____ Grade _____ Teacher _____

ANSI '69

PURE TONE AUDIOGRAM
Calibration
(Audiometer 15 cx)



RED RIGHT EAR BLUE LEFT EAR GREEN GSR

AV. HRG. LEVEL (two frequency average)
Rt. NR Lft. NR "Better Ear" NR dB

UNAIDED SPH. REC. TESTS (dB re normal)
Phones X Field X Recorded ____ Live X
Threshold W-1 Discrimination W-22-1-A
Rt. NR dB Rt. 0 % at 110 dB
Lft. NR dB Lft. 0 % at 110 dB
Bin. NR dB Bin. 0 % at 110 dB
_____ dB PB Max. ___ % at _____ dB

SPH. REC. TESTS WITH AID (dB re normal)
Aid Sonotone 670XV Ear right
Threshold _____ Discrimination _____
_____ dB _____ % at _____ dB

LOOK AND LISTEN SCORE, TEST _____
Unaided _____ % Aided _____ %

OTHER TESTS: _____

Date: 11/7/72 Tester _____

HEARING AID EVALUATION

NAME	MODEL	RECEIVER	SETTINGS	EAR	SRT	DISCRIMINATION

REMARKS:

HEARING CENTER

AUDIOLOGY AND SPEECH REPORT

DATE 5/21/73 TESTER _____

Name Student D Sex M Age 26

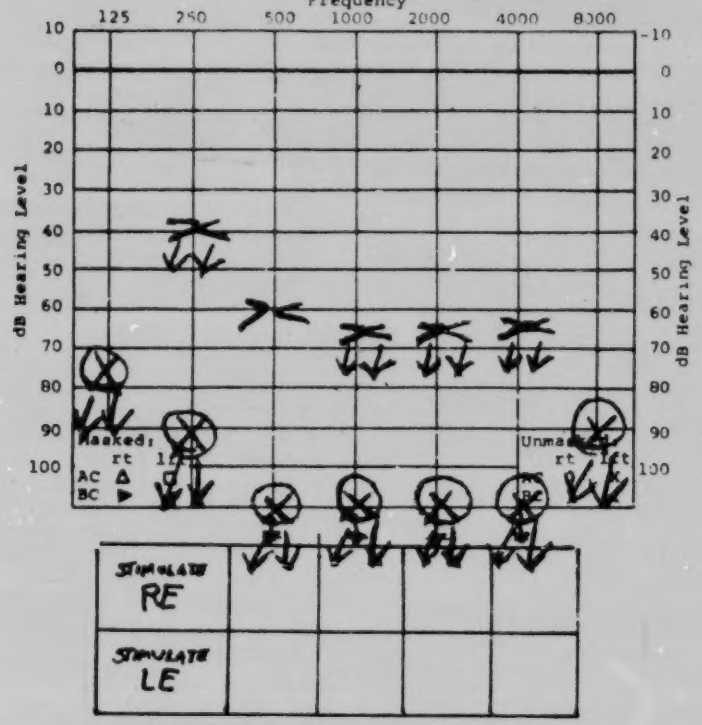
Address _____ Lancaster, Pa. County Lanc. Birthdate 8/28/46

Father _____ Mother _____ Test Validity: good ____ fair ____ poor ____

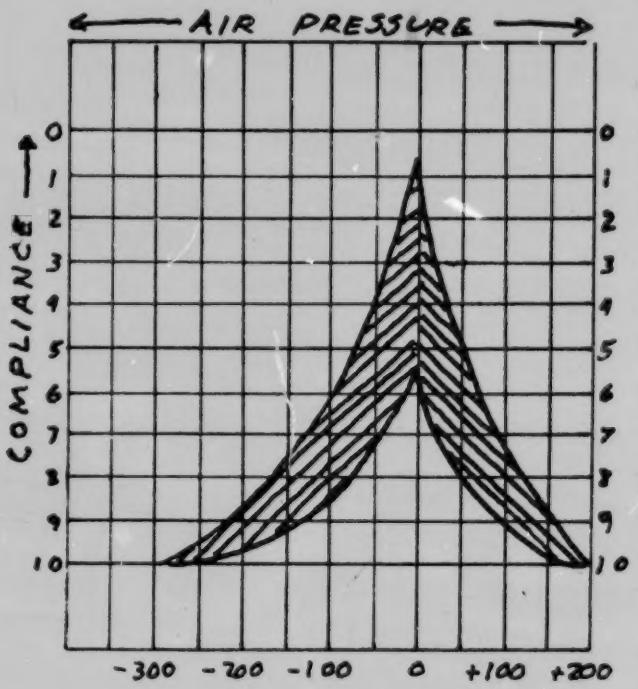
Home Telephone _____ Rererred by _____

School _____ Grade _____ Teacher _____

PURE TONE AUDIOGRAM
ANSI 1969 Calibration
(Audiometer 15 CX)



STAPEDIUS REFLEX (HTL)



AV. HRG. LEVEL (two frequency average)
Rt. NR Lft. NR "Better Ear" NR dB

UNAIDED SPH. REC. TESTS (dB re normal)
Phones X Field X Recorded ____ Live X
Threshold W-1 Discrimination W-22-1-A
Rt. NR dB Rt. 0 % at 110 dB
Lft. NR dB Lft. 0 % at 110 dB
Bin. NR dB Bin. 0 % at 110 dB
____ dB PB Max. ___ % at ____ dB

SPH. REC. TESTS WITH AID (dB re normal)
Aid _____ Ear _____
Threshold _____ Discrimination _____
_____ dB _____ % at _____ dB

LOOK AND LISTEN SCORE, TEST _____
Unaided _____ % Aided _____ %

OTHER TESTS: _____

HEARING AID EVALUATION

MAKE	MODEL	RECEIVER	SETTING	EAR	SRT	DISCRIM

REMARKS:

Student E
Age- 23
Duration of Deafness- Since Birth
Loss- Profound
Aid- Worn for last 19 years in worst ear
Records- Indicate student is aphasic
Number of contact hours at Adult Enrichment Center- 19.5 total
1/2 hr, twice/wk
& primarily a frequency of- 1,000 cps

PURE TONE SUMMARY (Two frequency average) Air: RE 100 LE 97.5

(Note: On the professional audiometric analysis, this student SRT (in the left ear) rose from 105 to 90 db, and his discrimination scores from 0% at 110 db to 40% at 110 db (also in the left ear). Right ear showed no change.

Audiologist's comments:

(On pre-test)..."Using simplified 'point to the picture' materials (TIP and DIP tests) a profound loss of reception and comprehension for spoken language was revealed. (On post-test)..."Speech threshold scores are better than those obtained in the past as are his speech discrimination scores."

Therapist's comments:

"The change in the scores could be due to the kind of work I did with him using the Bell and Howell picture cards to reinforce the auditory stimulus. Regardless, the jump is very encouraging!"

Parents' comments:

They felt he was hearing and speaking better. They noted new words in the vocabulary, use of short sentences rather isolated words or phrases, clearer, more precise speech, and more vocalization. They would recommend this program to someone else ("particularly at a younger age"). Also, they commented that..."his sister has noticed his desire to participate in conversation. His grandmother who sees him only a few times a year particularly noticed how he is more outgoing and trying to express himself."

HEARING CENTER

AUDIOLOGY AND SPEECH REPORT

Name Student E Sex M Age 23

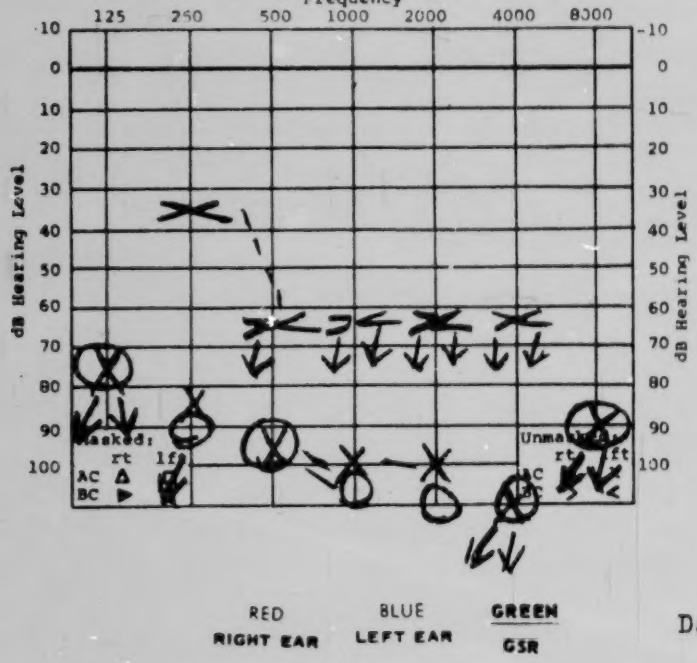
Address _____, Lancaster, Pa. County Lanc. Birthdate 10/22/49

Father _____ Mother _____ Test Validity: good X fair ___ poor ___

Home Telephone 393-1218 Referred by _____

School _____ Grade _____ Teacher _____

ANSI '69 PURE TONE AUDIOGRAM
Calibration
(Audiometer 15 ~~CX~~)
Frequency



RED RIGHT EAR BLUE LEFT EAR GREEN GSR

AV. HRG. LEVEL (two frequency average)
Rt. 100 Lft. 97.5 "Better Ear" 97.5 dB

UNAIDED SPH. REC. TESTS (dB re normal)
Phones X Field X Recorded ___ Live X
Threshold TIP Discrimination DIP
Rt. NR dB Rt. 0 % at 110 dB
Lft. 105 dB Lft. 0 % at 110 dB
Bin. NR dB Bin. 0 % at 110 dB
___ dB PB Max. ___ % at ___ dB

SPH. REC. TESTS WITH AID (dB re normal)
Aid _____ Ear _____
Threshold _____ Discrimination _____
_____ dB _____ % at _____ dB

LOOK AND LISTEN SCORE, TEST _____
Unaided _____ % Aided _____ %

OTHER TESTS: _____

Date: 11/6/72 Tester _____

HEARING AID EVALUATION

NAME	MODEL	RECEIVER	SETTINGS	EAR	SRT	DISCRIMINATION

REMARKS:

"Using simplified "point to the picture" materials (TIP and DIP tests) a profound loss of reception and comprehension for spoken language was noted.

Other audiometric measures such as a Bekesy Tracing would not be feasible in view of the profound binaural loss. Forexample, no data could be gathered from any threshold shifts because of the profound nature of the loss. The tracings would be too quickly beyond the limits of the audiometer."

HEARING CENTER

AUDIOLOGY AND SPEECH REPORT

DATE 5/22/73 TESTER _____

Name Student E Sex M Age 23

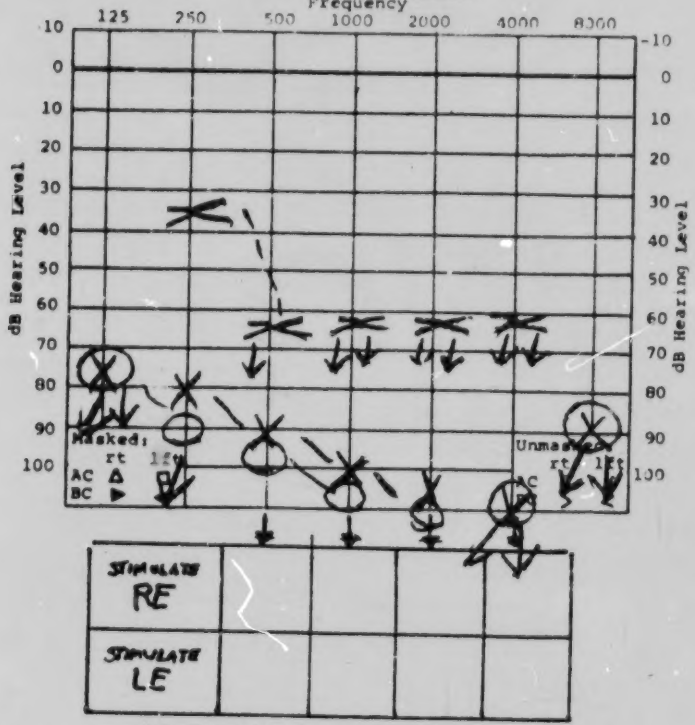
Address Lancaster, Pa. County Lanc. Birthdate 10/22/49

Father _____ Mother _____ Test Validity: good X fair ___ poor ___

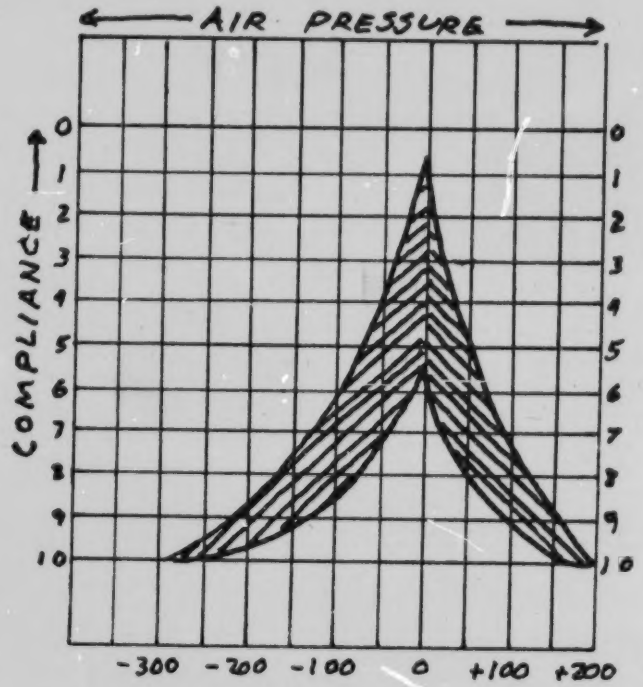
Home Telephone _____ Referred by Infra-Code Research Project

School _____ Grade _____ Teacher _____

PURE TONE AUDIOGRAM
ANSI 1969 Calibration
(Audiometer 15 CX)



STAPEDIUS REFLEX (HTL)



AV. UPG. LEVEL (two frequency average)
Rt. 100 Lft. 95 "Better Ear" 95 dB

UNAIDED SPH. REC. TESTS (dB re normal)
Phones X Field X Recorded ___ Live X
Threshold TIP Discrimination DIP
Rt. NR dB Rt. 0 % at 110 dB
Lft. 90 dB Lft. 40 % at 110 dB
Bin. 105 dB Bin. 10 % at 110 dB
___ dB PB Max. ___ % at ___ dB

SPH. REC. TESTS WITH AID (dB re normal)
Aid _____ Ear _____
Threshold _____ Discrimination _____
_____ dB _____ % at _____ dB

LOOK AND LISTEN SCORE, TEST _____
Unaided _____ % Aided _____ %

OTHER TESTS: _____

HEARING AID EVALUATION

MAKE	MODEL	RECEIVER	SETTING	EAR	SRT	DISCRIM

REMARKS: "[the audiogram] remains unchanged from his previous audiogram of Nov. 6. However, speech threshold scores are better than those obtained in the past as are his speech discrimination scores."

Student F
Age- 22
Duration of Deafness- Since 1 week old
Loss- Profound
Aid- None

Number of contact hours at Adult Enrichment Center- 34 total
45 minutes, three/wk
November to May

@ primarily at a frequency of- 1,000 cps

PURE TONE SUMMARY (Three frequency average) Air: RE--- LE---

Therapist's comments:

"Student had very little residual hearing and her speech was poor. As with many other students, her work during the course of the lesson was good, but after the lesson she would revert back to her former speech habits."

Parent's comments:

Her mother noted new words in the vocabulary, and more vocalization. She felt that she was both hearing and speaking better.

"Relatives have noticed clearer speech, and at work they can understand her more clearly."

"She is more aware of sound than ever before."

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

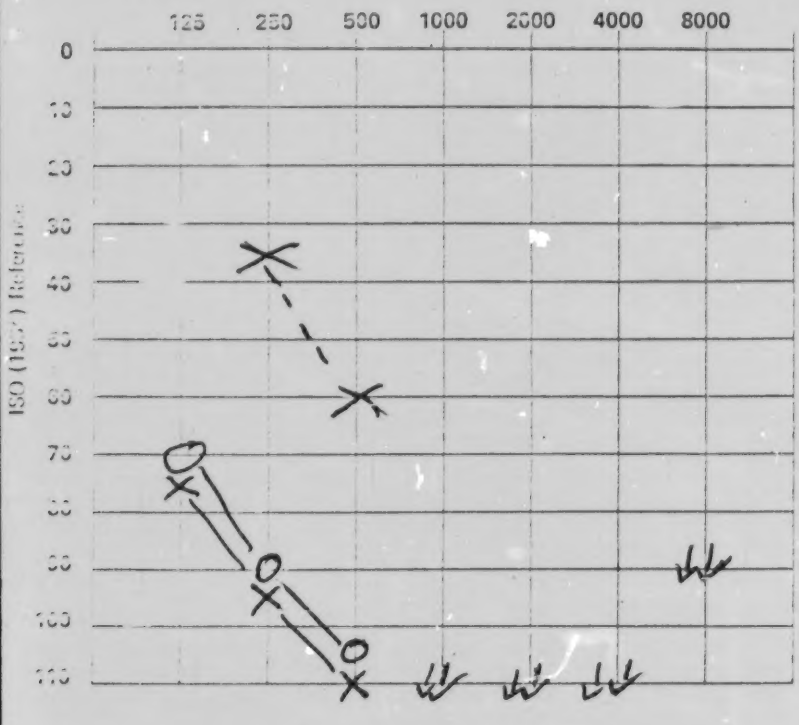
Name Student F Age 22 Date Nov. 8, 1972

Address _____ Telephone _____

Referred b (Infra Code Study) Examine _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red

LE: X - Blue

AIR MASKED

RE: △ - Red (LE masked _____dB)

LE: ▽ - Blue (RE masked _____dB)

BONE

RE: > - Red

LE < - Blue

BONE MASKED

RE: ⌐ - Red (LE masked _____dB)

LE: ¬ - Blue (RE masked _____dB)

FREE FIELD - □

PATIENT'S REPORT

Hearing: Constant ___ Varies ___

Hearing Today: Better ___ Same ___ Worse ___

Cold Today: Yes ___ Slight ___ No ___

Tinnitus: RE _____

LE _____

WEBER RESULTS

RE _____

LE _____

Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ___ Ave. ✓ Poor ___

TEST RELIABILITY

Good ___ Ave. ✓ Poor ___

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE — LE —

Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 110+ LE 110+ Free Field 110+

DISCRIMINATION

RE — LE — Free Field —

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

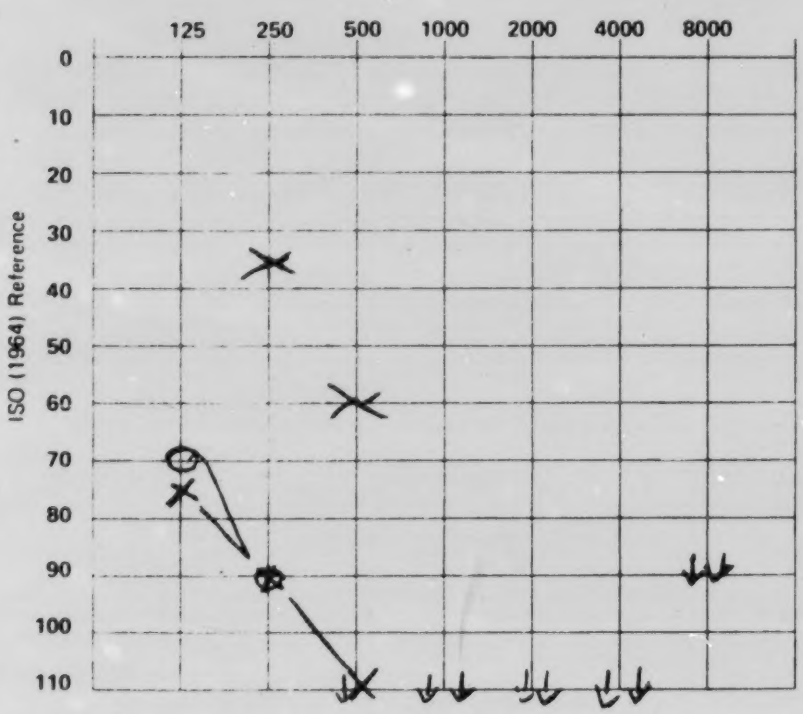
Name Student F Age 22 Date 5-22-73

Address _____ Telephone _____

Referred by Infra Code (2nd test) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O · Red
LE: X · Blue

BONE

RE: > · Red
LE: < · Blue

AIR MASKED

RE: Δ · Red (LE masked _____ dB)
LE: ∇ · Blue (RE masked _____ dB)

BONE MASKED

RE: ▶ · Red (LE masked _____ dB)
LE: ◀ · Blue (RE masked _____ dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant Varies ___
Hearing Today: Better Same Worse ___
Cold Today: Yes Slight No ___
Tinnitus: RE
LE

WEBER RESULTS

RE
LE
Unloc.

BEKESY RESULTS Type

TEST CONDITIONS

Good Ave. ✓ Poor

TEST RELIABILITY

Good Ave. ✓ Poor

PURE TONE SUMMARY

Average Loss 500 · 1000 · 2000 cps.

Air: RE – LE –
Bone: RE – LE –

SPEECH AUDIOMETRIC SUMMARY

SRT

RE – LE –

DISCRIMINATION

RE LE

TOLERANCE LEVEL

RE LE

Type of Loss _____ Extent of Loss _____

Comments and recommendations.

Student G
Age- 60
Duration of Deafness- 2 years
Loss- Profound
Aid- Worn briefly, she felt it was of no help

Records-
Indicate student had normal hearing until 2 years ago, when she was given an injection of Kantrece to kill an infection... the Kantrece apparently destroyed the nerves in her ears.

Number of contact hours at Adult Enrichment Center- 9.5 hours total
1 hr/wk Jan. to March

Therapist's comments:

"This woman drove from the Philadelphia area to attend our therapy sessions. She drove to Lancaster on Monday, stayed over night in a hotel and came for two 1/2 hour therapy sessions on Tuesday. She fully expected that we could "cure" her deafness, as she had read an extremely misleading article concerning the efficacy of the Infra Code machines in the National Enquirer. Her desperation made her very vulnerable. After nearly ten hours of very hard work by her and the therapist, her responses to three-word sentences were no better than at the first session. Yet she still wanted to come for additional sessions, and was only prevented from doing so by her doctor. She has had two car accidents as a result of coming to Lancaster, and the doctor refused to allow her to come again after the March accident.

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

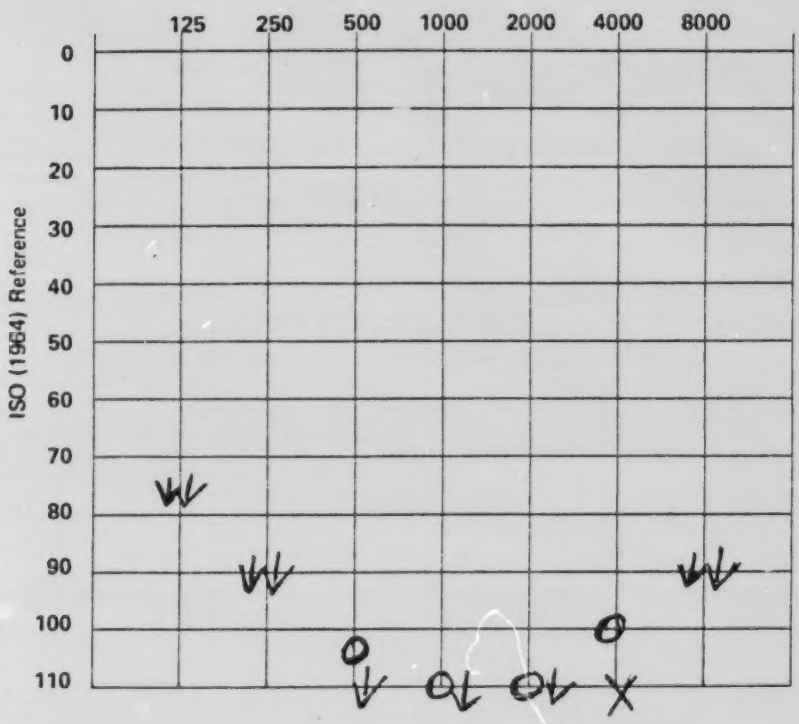
Name Student G Age 59 Date Nov. 13, 1972

Address _____ Telephone _____

Referred by (IntraCode Study) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR
RE: O - Red
LE: X - Blue

BONE
RE: > - Red
LE < - Blue

AIR MASKED
RE: Δ - Red (LE masked _____ dB)
LE: ▽ - Blue (RE masked _____ dB)

BONE MASKED
RE: ▶ - Red (LE masked _____ dB)
LE: ◀ - Blue (RE masked _____ dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant ___ Varies ___
Hearing Today: Better ___ Same ___ Worse ___
Cold Today: Yes ___ Slight ___ No ___
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ___ Ave. ✓ Poor ___

TEST RELIABILITY

Good ___ Ave. ✓ Poor ___

PURE TONE SUMMARY

Average Loss 500 · 1000 · 2000 cps.

Air: RE 108 LE —
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE — LE — Free Field —

DISCRIMINATION

RE — LE — Free Field —

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

(No bone thresholds obtained)

Student H
Age- 27
Duration of Deafness- Since 6 years of age
Loss- Profound
Aid- None, ever

Number of contact hours at Adult Enrichment Center- 4 hrs. total
8 1/2 hour sessions
Dec. to Jan.

@ frecuency of- 1,000 cps

Therapist's comments:

"Student H, a native of Ghana and in this country on a student visa learning the jeweler's trade seemed to have all the speech sounds except a K. Our machine would have provided him with auditory training in the English language so that he could probably have been usefully fitted with an aid. Because he is bright and highly motivated, he could have learned how to speak through May. He already had a sound language base since he had been taught the English manual system in Africa."

"Unfortunately, he found himself in a dire financial situation in January, and it was necessary for us to work in his behalf to help him obtain employment and to change his visa accordingly, in addition to getting an extension."

"In spite of having only worked here a short time, after a few sessions he could say short three and four word sentences."

"He is now working in Washington, D.C., at the jeweler's trade.

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

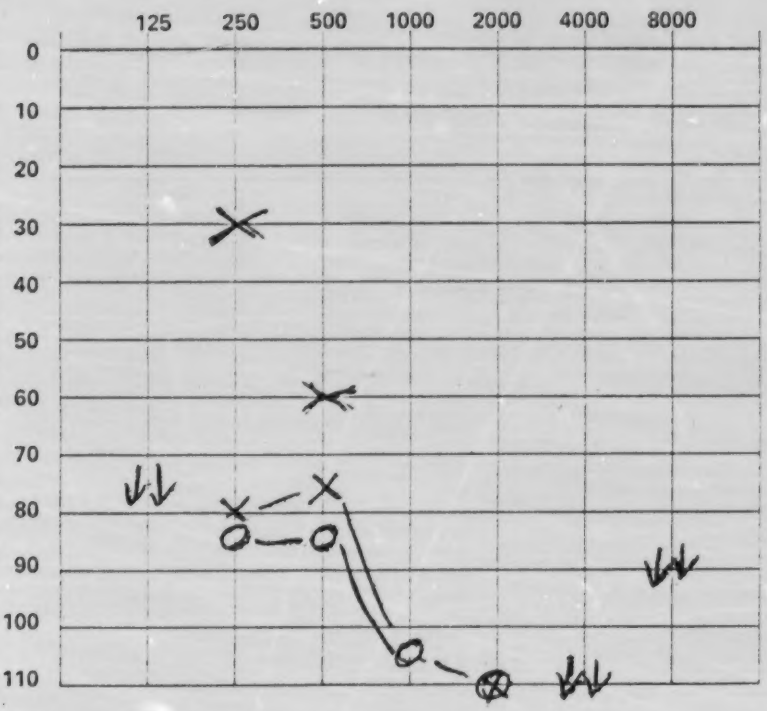
Name Student H Age 27 Date Nov. 15, 1972

Address _____ Telephone _____

Referred by (Infra Code) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red
LE: X - Blue

BONE

RE: > - Red
LE < - Blue

AIR MASKED

RE: Δ - Red (LE masked _____ dB)
LE: ▽ - Blue (RE masked _____ dB)

BONE MASKED

RE: ⊃ - Red (LE masked _____ dB)
LE: ◁ - Blue (RE masked _____ dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant ____ Varies ____
Hearing Today: Better ____ Same ____ Worse ____
Cold Today: Yes ____ Slight ____ No ____
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ____ Ave. ✓ Poor ____

TEST RELIABILITY

Good ____ Ave. ✓ Poor ____

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE 100 LE 57 ? 97
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE — LE — Free Field —

DISCRIMINATION

RE — LE — Free Field —

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Friend who brought patient for hearing examination, indicated that he had no speech.

Student I
Age- 63
Duration of Deafness- Since 7 years old.
Loss- Profound
Aid- Worn in left ear from 1940-1944.

Number of contact hours at Adult Enrichment Center- 8.5 total
once a week
January to May
@ primarily at a frequency of- 1,000 cps

PURE TONE SUMMARY (Three frequency average) Air: RE -- LE --

Therapist's comments:

"At times, when his right ear would 'open up' as he termed it, he could respond to the machine at half volume. He was difficult to work with, and resented any speech correction, so we just worked on the hearing therapy."

Student's comments:

Although he felt his hearing hadn't improved, he would recommend the program to someone else.

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

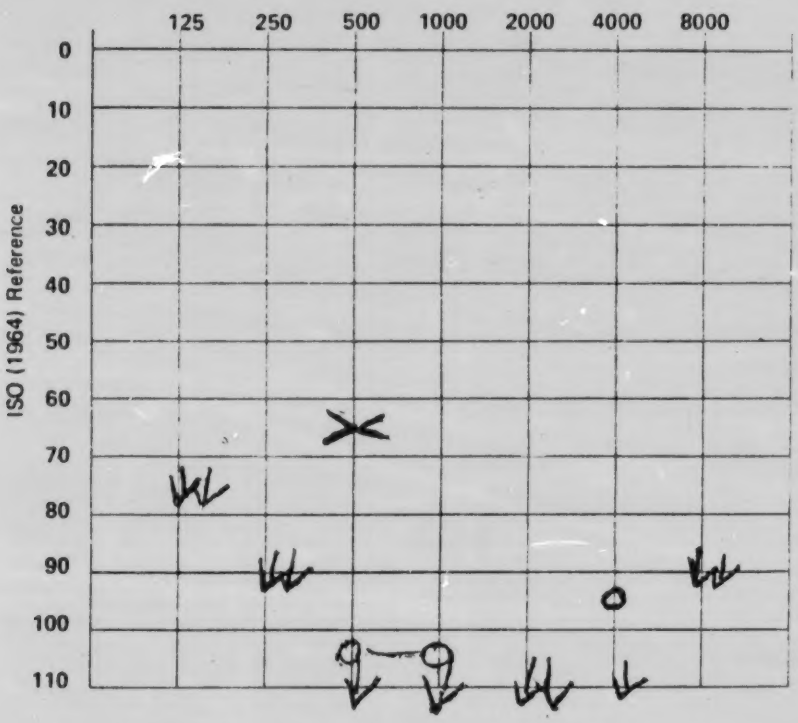
Name Student I Age _____ Date Feb, 6, 1973

Address _____ Telephone _____

Referred by Infra Code Examin _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red
LE: X - Blue

BONE

RE: > - Red
LE < - Blue

AIR MASKED

RE: Δ - Red (LE masked _____dB)
LE: ∇ - Blue (RE masked _____dB)

BONE MASKED

RE: ▶ - Red (LE masked _____dB)
LE: ◀ - Blue (RE masked _____dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant ___ Varies ___
Hearing Today: Better ___ Same ___ Worse ___
Cold Today: Yes ___ Slight ___ No ___
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ___ Ave. ___ Poor ___

TEST RELIABILITY

Good ___ Ave. ___ Poor ___

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE _____ LE _____
Bone: RE _____ LE _____

SPEECH AUDIOMETRIC SUMMARY

RE _____ LE _____

DISCRIMINATION

RE _____ LE _____

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Patient reports "good" and "bad" times for hearing. At the time of this test, he reports "bad" hearing.

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

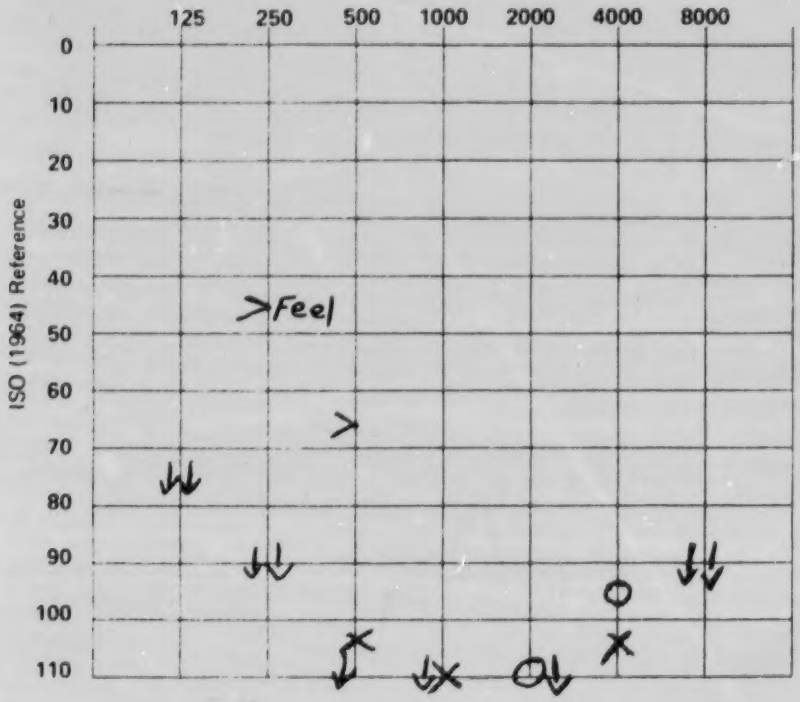
Name Student I Age 64 Date 5-22-73

Address _____ Telephone _____

Referred by Infra Code (2nd Test) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O · Red
LE: X · Blue

BONE

RE: > · Red
LE: < · Blue

AIR MASKED

RE: Δ · Red (LE masked _____dB)
LE: ▽ · Blue (RE masked _____dB)

BONE MASKED

RE: ▶ · Red (LE masked _____dB)
LE: ◀ · Blue (RE masked _____dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant Varies ___
Hearing Today: Better Same Worse ___
Cold Today: Yes Slight No ___
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good Ave. Poor ___

TEST RELIABILITY

Good Ave. Poor ___

PURE TONE SUMMARY

Average Loss 500 · 1000 · 2000 cps.

Air: RE _____ LE _____
Bone: RE _____ LE _____

SPEECH AUDIOMETRIC SUMMARY

SRT

RE _____ LE _____

DISCRIMINATION

RE _____ LE _____

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Student J
Age- 18
Duration of Deafness- Since Birth.
Loss- Profound
Aid- Worn for a brief period of time many years ago at Pennsylvania School for the Deaf
Number of contact hours at Adult Enrichment Center- 9 total
1/2 hr/wk
December to May
@ primarily at a frequency of- 1,000 cps

PURE TONE SUMMARY (Three frequency average) Air: RE -- LE --

Therapist's comments:

"Student was placed (on Feb. 26, 1973) in a job situation where he must communicate verbally. Prior to this, his foreman at a training workshop had communicated with him by means of sign. The student reported that he is now talking at work. It was unfortunate that he could only come once a week--his caseworker brought him from York."

Caseworker's comments:

"On the questionnaire, his caseworker noted clearer, more precise speech and indicated that he was vocalizing more."

(in a note to the therapist)--"I would like to thank you for your efforts, time, and I'm sure much patience spent in teaching both hearing and speech. I do know he looked forward to and enjoyed each trip made to Lancaster. In fact, today while leaving the clinic, he wanted to know if we would be going over to the Center for class. I suppose he misunderstood me when I told him today was his last visit to Lancaster. I informed him that classes were through for good for both he and your other students. He was disappointed--I know he enjoyed them."

SPEECH AND HEARING DIVISION

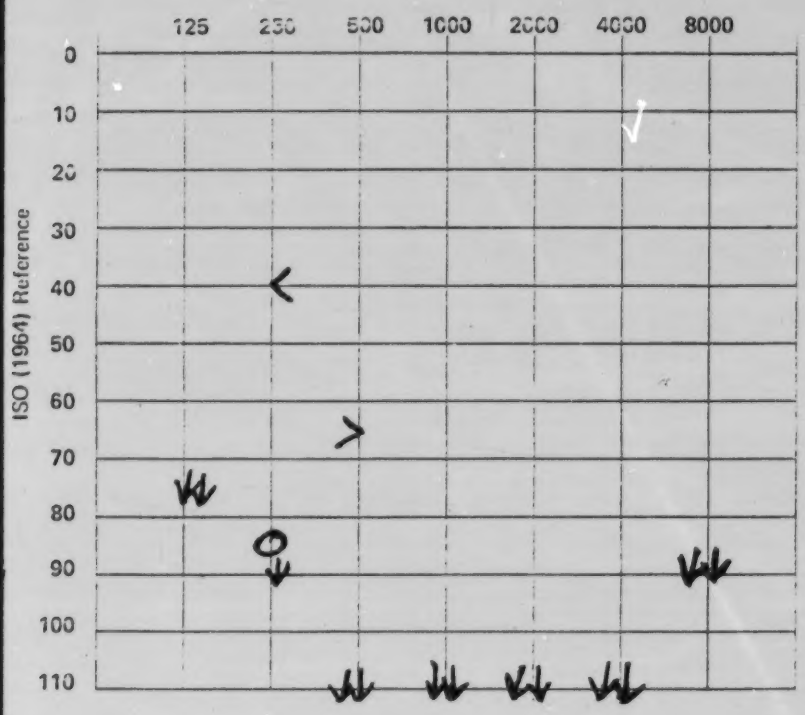
AUDIOMETRIC ANALYSIS

Name Student J Age 18 Date Dec. 7, 1972

Address _____ Telephone _____

Referred by (Infra-code study) Examiner _____

PURE TONE AUDIOGRAM
Frequency



AIR
RE: O - Red
LE: X - Blue

BONE
RE: > - Red
LE: < - Blue

AIR MASKED
RE: Δ - Red (LE masked _____dB)
LE: ∇ - Blue (RE masked _____dB)

BONE MASKED
RE: > - Red (LE masked _____dB)
LE: < - Blue (RE masked _____dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant ____ Varies ____
Hearing Today: Better ____ Same ____ Worse ____
Cold Today: Yes ____ Slight ____ No ____
Tinnitus: RE _____
LE _____

WEBER RESULTS
RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS
Good _____ Ave. ✓ Poor _____
TEST RELIABILITY
Good _____ Ave. ✓ Poor _____

PURE TONE SUMMARY
Average Loss 500 - 1000 - 2000 cps.
Air: RE — LE —
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY
SRT
RE — LE — Free Field —
DISCRIMINATION
RE — LE — Free Field —
TOLERANCE LEVEL
RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

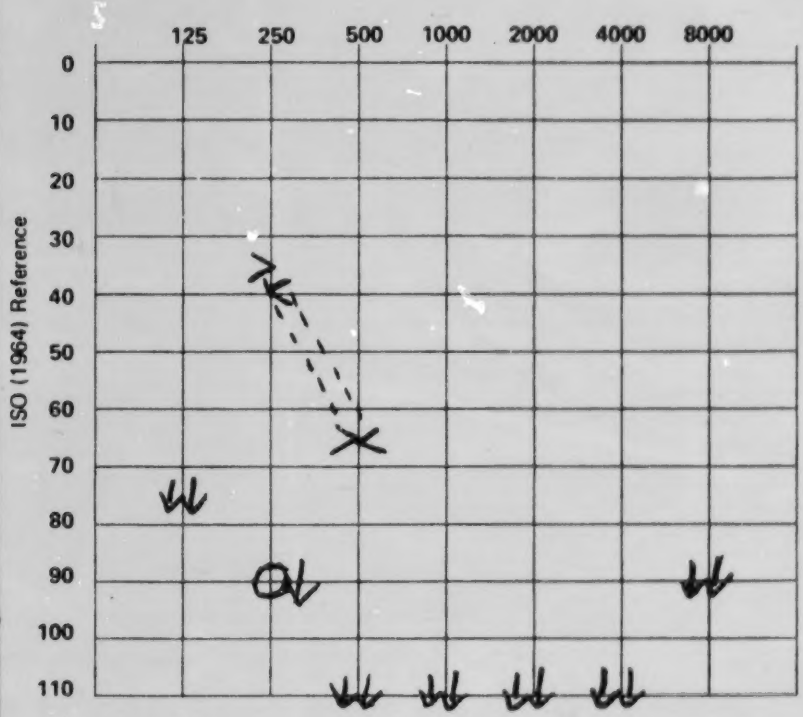
Name Student J Age 18 Date 5-24-73

Address _____ Telephone _____

Referred by Infra Code (#2 Test) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red
LE: X - Blue

BONE

RE: > - Red
LE < - Blue

AIR MASKED

RE: Δ - Red (LE masked _____ dB)
LE: ∇ - Blue (RE masked _____ dB)

BONE MASKED

RE: ▶ - Red (LE masked _____ dB)
LE: ◀ - Blue (RE masked _____ dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant ____ Varies ____
Hearing Today: Better ____ Same ____ Worse ____
Cold Today: Yes ____ Slight ____ No ____
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ____ Ave. ✓ Poor ____

TEST RELIABILITY

Good ____ Ave. ✓ Poor ____

PURE TONE SUMMARY

Average Loss 500 · 1000 · 2000 cps.

Air: RE — LE —
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE — LE —

DISCRIMINATION

RE — LE —

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Student K
Age-19
Duration of Deafness- Since one week old.
Loss- Profound
Aid- Worn briefly as a young child.
Records- Indicate student is aphasic

Number of contact hours at Adult Enrichment Center 15.5 total
1/2 sessions Nov. - May

© primarily a frequency of- 1,000 cps

PURE TONE SUMMARY (two frequency average) Air: RE NR LE 105

Therapist's comments:

"This student's hearing has been deteriorating for several years, and not having worn an aid when he really could have taken advantage of it, he was really excited about being able to "hear" through the machine. Had I been able to work with him more often, I feel his speech could have improved quite markedly. On the basis of his ability to hear with the machine, we approached BVR about getting him an aid."

Parent's comments:

"His mother reported definite improvement in speech and vocabulary on the questionnaire. She noted addition of new words in vocabulary, use of sentences rather than isolated words or phrases, clearer, more precise speech and more vocalization."

In answer to question 8: Have other relatives or friends noted any improvement in speech or hearing?--"Family and friends indicate that it is much easier for them to communicate with _____ because he phrases his words more clearly and doesn't "chop" his words or drop certain syllables. He also has improved on speaking in sentences, for example, he uses "Don't do that" rather than just plain "Don't!! _____ enjoyed the program and was anxious to attend. He thoroughly enjoyed working with the therapist and I'm sure he'll miss her--She has the "special" talent and patience required to make the program a success."

AUDIOLOGY AND SPEECH REPORT

Name Student K Sex M Age 18

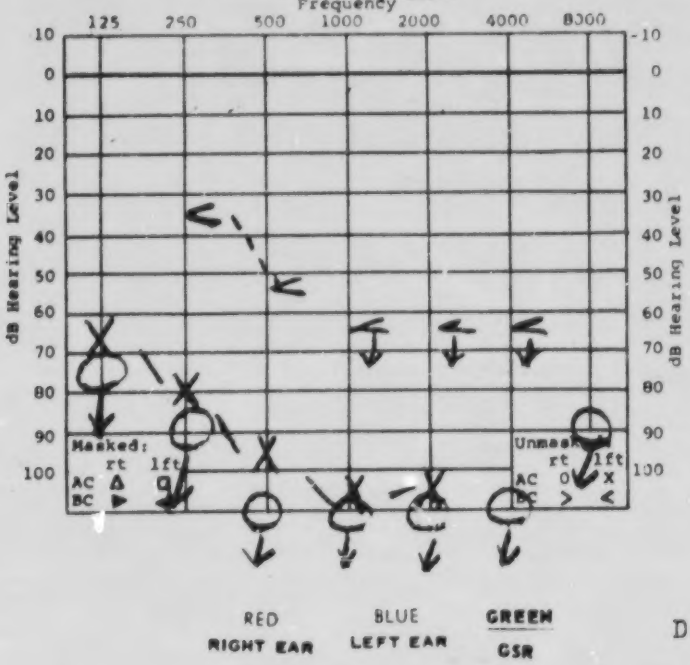
Address Lancaster, Pa. County Lanc. Birthdate 4/26/54

Father ____ Mother ____ Test Validity: good X fair ____ poor ____

Home Telephone ____ Referred by ____

School Willow St. Vo-Tech Grade ____ Teacher ____

ANSI '69 PURE TONE AUDIOGRAM
~~ISO 1964~~ Calibration
(Audiometer 15 cx)



AV. HRG. LEVEL (two frequency average)
Rt. NR Lft. 100 "Better Ear" 100 dB

UNAIDED SPH. REC. TESTS (dB re normal)
Phones X Field ____ Recorded ____ Live ____
Threshold W-1 Discrimination ____
Rt. NR dB Rt. ____ % at ____ dB
Lft. NR dB Lft. ____ % at ____ dB
Bin. ____ dB Bin. ____ % at ____ dB
____ dB PB Max. ____ % at ____ dB

SPH. REC. TESTS WITH AID (dB re normal)
Aid ____ Ear ____
Threshold ____ Discrimination ____
____ dB ____ % at ____ dB

LOOK AND LISTEN SCORE, TEST ____
Unaided ____ % Aided ____ %

OTHER TESTS: ____

Date: 11/8/72 Tester ____

HEARING AID EVALUATION

NAME	MODEL	RECEIVER	SETTINGS	EAR	SRT	DISCRIMINATION

REMARKS:
Use of Bekesy Tracings was contraindicated because Michael's puretone average was such that a diagnosis of a threshold shift would be meaningless as it was so close to maximum audiometer output. For example, it would be impossible to determine more than a 15 dB shift in a Bekesy Tracing at the frequency where the greatest range of change was possible.

THE HEARING CONSERVATION CENTER OF LANCASTER COUNTY, PA.
630 Janet Ave., Lancaster, Pa. 17601 Area Code 717, 392-0615

AUDIOLOGY AND SPEECH REPORT

DATE 5/21/73 TESTER _____

Name Student K Sex M Age 19

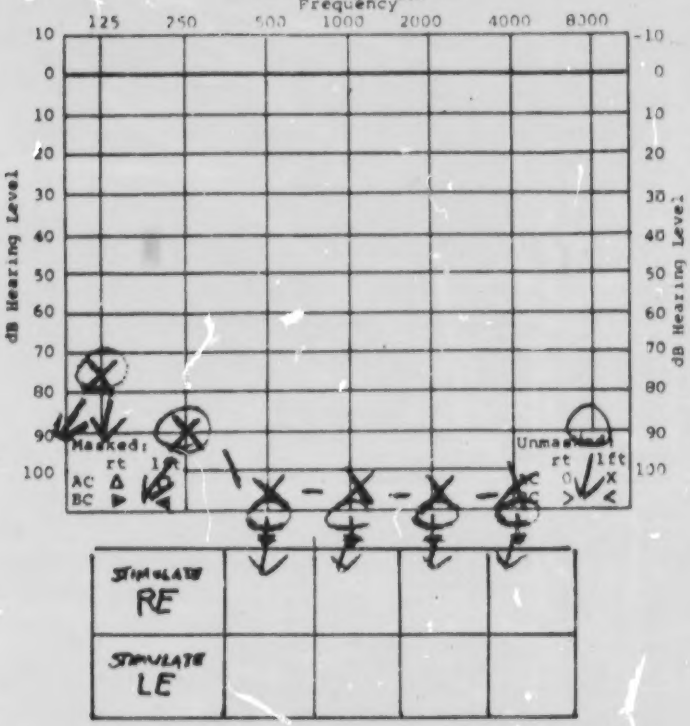
Address _____ Lancaster Pa. 17603 County Lanc. Birthdate 4/26/54

Father _____ Mother _____ Test Validity: good X fair ____ poor ____

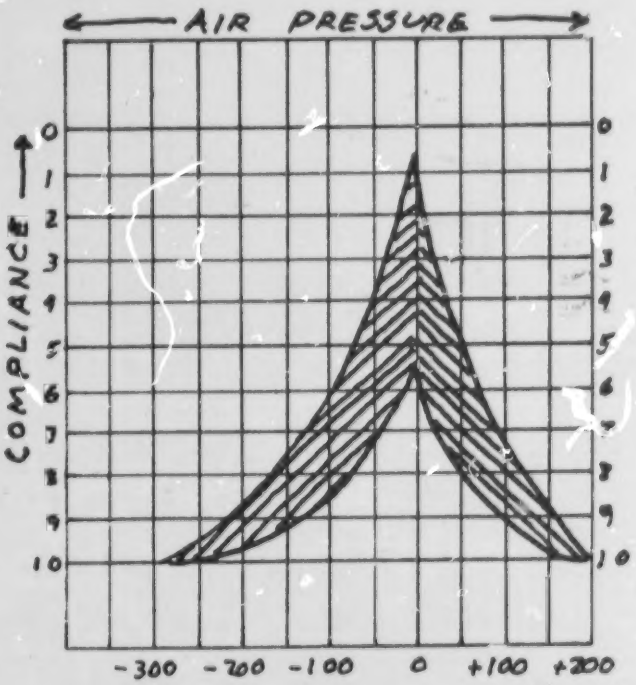
Home Telephone _____ Referred by Infra-Code Research

School _____ Grade _____ Teacher _____

PURE TONE AUDIOGRAM
ANSI 1969 Calibration
(Audiometer 15 cx)



STAPEDIUS REFLEX (HTL)



AV. UPG. LEVEL (two frequency average)
Rt. NR Lft. 105 "Better Ear" 105 dB

UNAIDED SPH. REC. TESTS (dB re normal)
Phones X Field X Recorded ____ Live X
Threshold W-1 Discrimination W-22-1-A
Rt. NR dB Rt. 0 % at 110 dB
Lft. NR dB Lft. 0 % at 110 dB
Bin. NR dB Bin. 0 % at 110 dB
____ dB PB Max. ___ % at ____ dB

SPH. REC. TESTS WITH AID (dB re normal)
Aid _____ Ear _____
Threshold _____ Discrimination _____
____ dB ____ % at ____ dB

LOOK AND LISTEN SCORE. TEST _____
Unaided ____ % Aided ____ %

OTHER TESTS: _____

HEARING AID EVALUATION

MAKE	MODEL	RECEIVER	SETTING	EAR	SRT	DISCRIM

REMARKS:

Student L
Age- 17
Duration of Deafness- Since Birth
Loss- Profound
Aid- Worn in left ear for past 10 years

Number of contact hours at Adult Enrichment Center- 7.5 total
1/2 hr/wk Nov. to May

@ frequency of- 1,000 cps

PURE TONE SUMMARY (500.1,000.2,000) Air: RE -- LE 95

(Note: No SRT or Discrimination scores available from this student either pre- or post-test.)

Audiologist's comments:

Good speech.
Lip reads well.

Therapist's comments:

"This student had good speech in spite of his loss. He would rather have been playing basketball (as he said) than repeating sentences after me. I was really impressed with the work that had been done already with both him and his brother (Student M). At times, it was difficult to notice that they had hearing losses!"

Students' comments:

Both Student L and Student M (brothers), when asked if they felt they were hearing any better, said "No" but felt they "were more aware of sound around them--they felt they concentrated more; and paid more attention." Both said "it is not a cure."

Student M
Age- 17
Duration of Deafness- Since Birth
Loss- Profound
Aid- Worn in right ear for past 10 years

Number of contact hours at Adult Enrichment Center- 7.5 total
1/2 hr/wk Nov. to March

PURE TONE SUMMARY (500.1,000.2,000) Air: RE 93 LE 100

(Note: No SRT or Discrimination scores available from this student either pre- or post-test.)

Therapist's comments:

" Interestingly, both Students L and M felt that they could tell no difference in hearing ability between their aid and the machine."

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

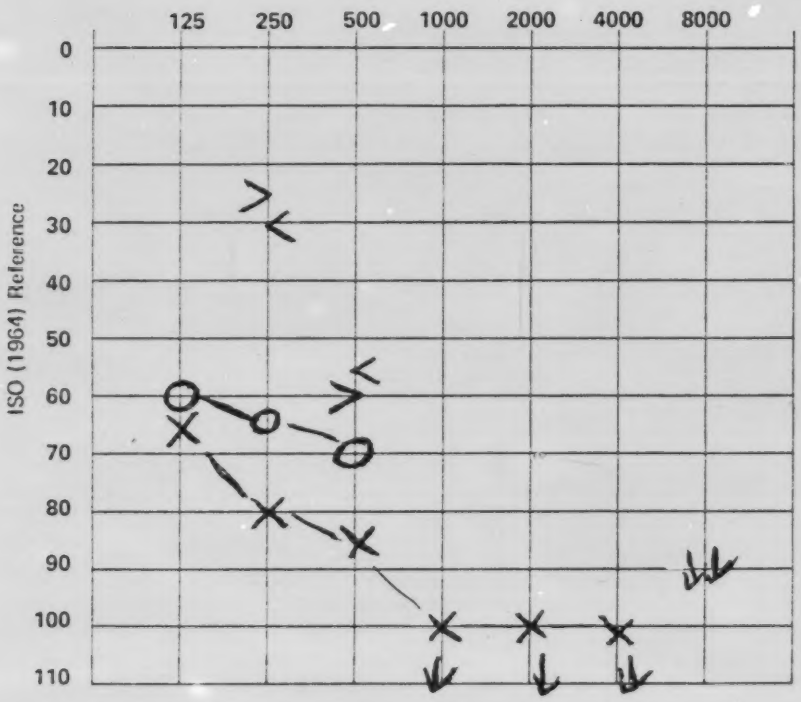
Name Student L Age 16 Date Nov. 9, 1972

Address _____ Telephone _____

Referred by (Infra Code Study) Examine. _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red
LE: X - Blue

BONE

RE: > - Red
LE < - Blue

AIR MASKED

RE: Δ - Red (LE masked _____ dB)
LE: ▽ - Blue (RE masked _____ dB)

BONE MASKED

RE: > - Red (LE masked _____ dB)
LE: ◁ - Blue (RE masked _____ dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant ____ Varies ____
Hearing Today: Better ____ Same ____ Worse ____
Cold Today: Yes ____ Slight ____ No ____
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ✓ Ave. ____ Poor ____

TEST RELIABILITY

Good ✓ Ave. ____ Poor ____

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE — LE 95
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 110+ LE 110+ Free Field

DISCRIMINATION

RE — LE — Free Field

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Good speech
Lip reads well

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

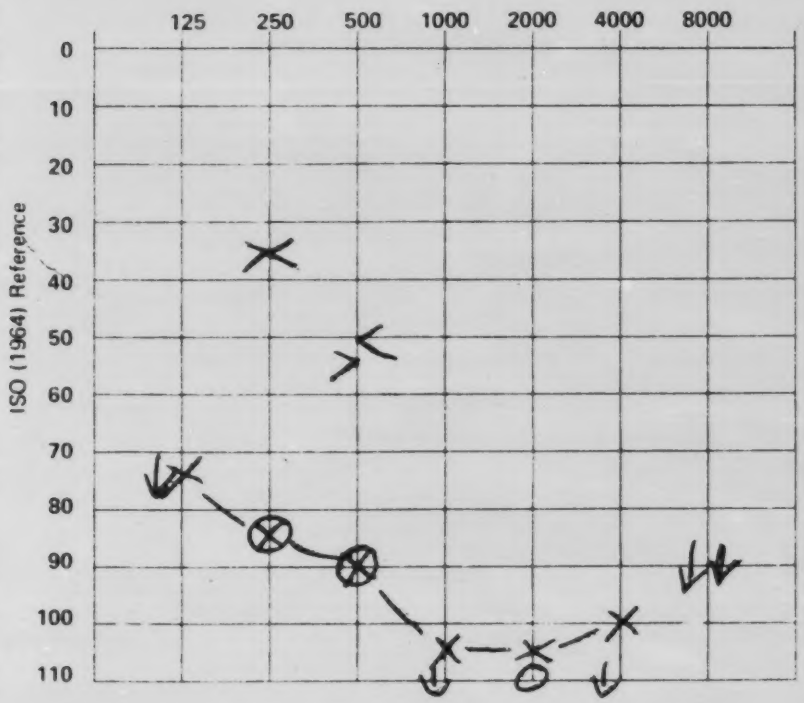
Name Student L Age 16 Date 4-19-73

Address _____ Telephone _____

Referred by Infra Code Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O · Red
LE: X · Blue

BONE

RE: > · Red
LE < · Blue

AIR MASKED

RE: Δ Red (LE masked _____dB)
LE: ▽ Blue (RE masked _____dB)

BONE MASKED

RE: ▶ · Red (LE masked _____dB)
LE: ◀ · Blue (RE masked _____dB)

FREE FIELD - □

PATIENT'S REPORT

Hearing: Constant ___ Varies ___
Hearing Today: Better ___ Same ___ Worse ___
Cold Today: Yes ___ Slight ___ No ___
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good Ave. ✓ Poor ___

TEST RELIABILITY

Good Ave. ✓ Poor ___

PURE TONE SUMMARY

Average Loss 500 · 1000 · 2000 cps.

Air: RE — LE 100
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT Free Field

RE — LE —

DISCRIMINATION Free Field

RE — LE —

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations.

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

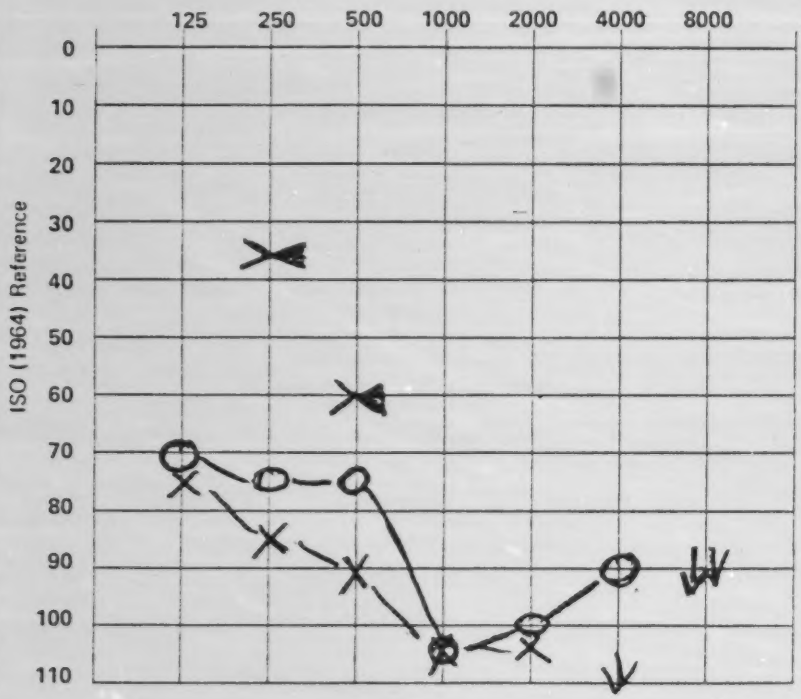
Name Student M Age 16 Date Nov. 9, 1972

Address _____ Telephone _____

Referred by (Infra Code Study) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR
RE: O - Red
LE: X - Blue

BONE
RE: > - Red
LE < - Blue

AIR MASKED
RE: Δ - Red (LE masked _____ dB)
LE: ▽ - Blue (RE masked _____ dB)

BONE MASKED
RE: > - Red (LE masked _____ dB)
LE: ◁ - Blue (RE masked _____ dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant ____ Varies ____
Hearing Today: Better ____ Same ____ Worse ____
Cold Today: Yes ____ Slight ____ No ____
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ✓ Ave. ____ Poor ____

TEST RELIABILITY

Good ✓ Ave. ____ Poor ____

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE 93 LE 100
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 110+ LE 110+ Free Field —

DISCRIMINATION

RE — LE — Free Field —

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Good speech
Lipreads well

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

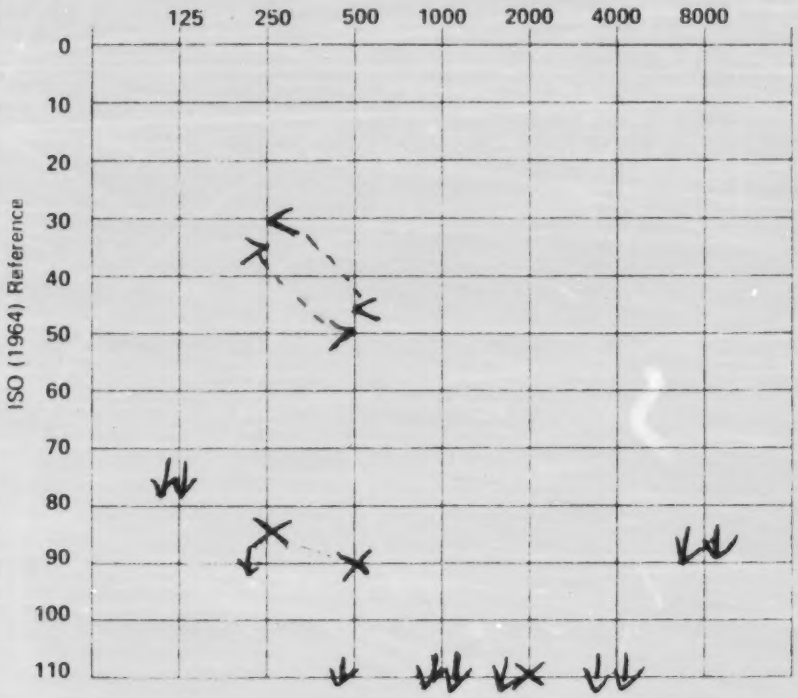
Name Student M Age 16 Date 4-19-73

Address _____ Telephone _____

Referred by Infra Code Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O Red
LE: X Blue

BONE

RE: > Red
LE < Blue

AIR MASKED

RE: Δ Red (LE masked _____ dB)
LE: ▽ Blue (RE masked _____ dB)

BONE MASKED

RE: ▶ Red (LE masked _____ dB)
LE: ◀ Blue (RE masked _____ dB)

FREE FIELD - □

PATIENT'S REPORT

Hearing: Constant Varies
Hearing Today: Better Same Worse
Cold Today: Yes Slight No
Tinnitus: RE
LE

WEBER RESULTS

RE
LE
Unloc.

BEKESY RESULTS: Type

TEST CONDITIONS

Good Ave. ✓ Poor

TEST RELIABILITY

Good Ave. ✓ Poor

PURE TONE SUMMARY

Average Loss 500 1000 2000 cps.

Air: RE — LE —
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT Free field

RE — LE —

DISCRIMINATION Free field

RE — LE —

TOLERANCE LEVEL

RE LE

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Student N
Age- 24
Duration of Deafness- Since 10 months of age.
Loss- Profound
Aid- Worn for 21 years
Number of contact hours at Adult Enrichment Center- 77 total
8 hr/wk=56
Feb. to March
3 hr/wk=21
April to May
@ primarily at a frequency of- 1,000 cps

PURE TONE SUMMARY (Three frequency average) Air: RE 90 LE 92

Therapist's comments:

"Recently separated, with the responsiblity of two small children and finding a job, this student said she felt the program had been beneficial in helping her to find a way out of her problems. She also divided her time between the Deaf Research Project and the Secretarial School. She started working in April (her first job) and continued to come to Lancaster on her days off."

Mother's comments:

"I have seen a little progress in _____'s speech but due to her problems I don't really think she tried extra hard. I do believe she would have done better if she wasn't under so much stress-- _____too has a lot of faith in [the therapist.]

Note: [Student N and B are sisters. They were not born with hearing impairments but became deaf as a result of high fevers at young ages.]

Sister-in Law's comments: (she was responsible for enrolling both N & B, is a case-worker with the Board of Assistance)

"_____was not overly receptive to returning to school, and, therefore, seemed to fight efforts to improve her hearing and speech. I think, however, that her getting out of the house and being active in the program has been to her benefit. She has become a bit more independant and is now working full time."

"I am not certain that she herself recognizes any changes since her enrollment in your program. She does feel free to talk to strangers now, and she seems to better understand what her children say to her."

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

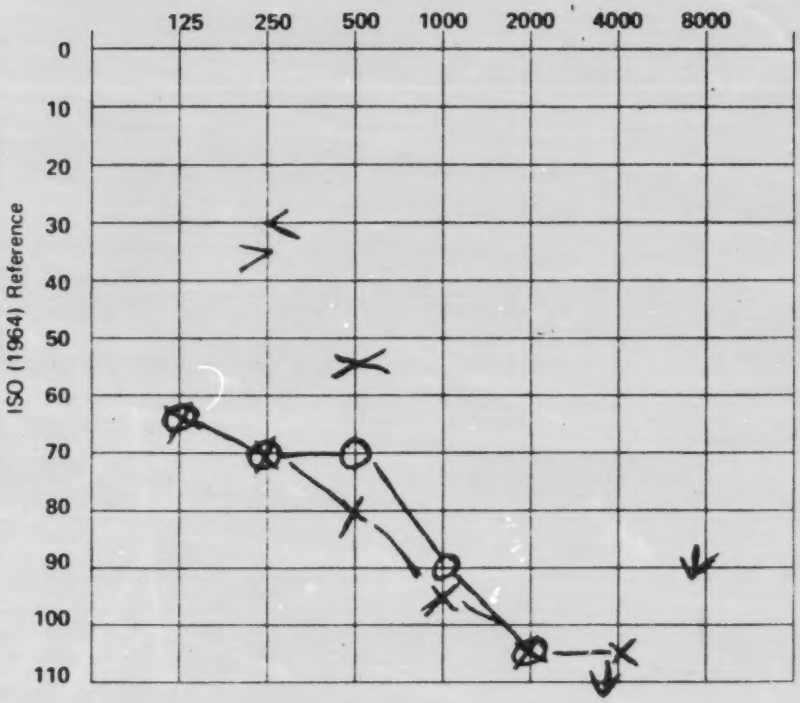
Name Student N Age 24 Date 2-15-73

Address _____ Telephone _____

Referred by Infra Code Study Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red
LE: X - Blue

BONE

RE: > - Red
LE < - Blue

AIR MASKED

RE: Δ - Red (LE masked _____dB)
LE: ▽ - Blue (RE masked _____dB)

BONE MASKED

RE: ▶ - Red (LE masked _____dB)
LE: ◀ - Blue (RE masked _____dB)

FREE FIELD – ☐

PATIENT'S REPORT

Hearing: Constant ___ Varies ___
Hearing Today: Better ___ Same ___ Worse ___
Cold Today: Yes ___ Slight ___ No ___
Tinnitus: RE _____
LE _____

WEBER RESULTS

RE _____
LE _____
Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ___ Ave. ✓ Poor ___

TEST RELIABILITY

Good ___ Ave. ✓ Poor ___

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE 90 LE 92
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 90 LE 94

DISCRIMINATION

RE not tty LE not tty

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss sensori - neural Extent of Loss _____

Comments and recommendations:

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

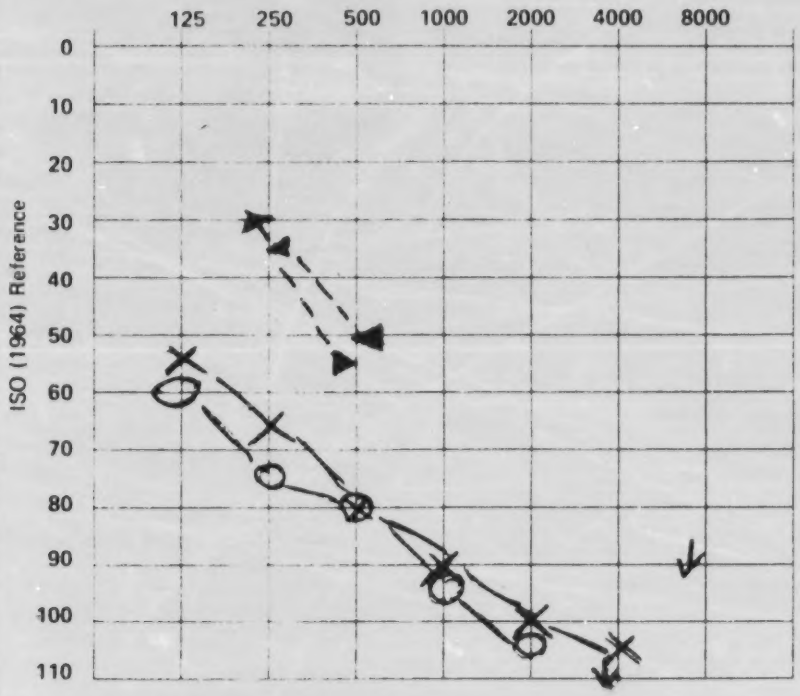
Name Student N Age 24 Date 5-22-73

Address _____ Telephone _____

Referred by Infra Code (2nd test) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O Red

LE: X Blue

BONE

RE: > Red

LE < Blue

AIR MASKED

RE: Δ Red (LE masked ____dB)

LE: ▽ Blue (RE masked ____dB)

BONE MASKED

RE: ▶ Red (LE masked 90 dB)

LE: ◀ Blue (RE masked 90 dB)

FREE FIELD - ☐

PATIENT'S REPORT

Hearing: Constant Varies

Hearing Today: Better Same Worse

Cold Today: Yes Slight No

Tinnitus: RE

LE

WEBER RESULTS

RE

LE

Unloc.

BEKESY RESULTS: Type

TEST CONDITIONS

Good Ave. ✓ Poor

TEST RELIABILITY

Good Ave. ✓ Poor

PURE TONE SUMMARY

Average Loss 500 · 1000 · 2000 cps.

Air: RE 93 LE 90

Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 92 LE 90

DISCRIMINATION

RE — LE —

TOLERANCE LEVEL

RE LE

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Student O
Age- 18
Duration of Deafness- Since Birth
Loss- Severe
Aid- Aid worn in left ear for the past 13 years
Records- Indicate student is aphasic. However, he attends regular high school--junior year classification.
Number of contact hours at Adult Enrichment Center- 19 total
24 1/2 hour sessions
7 hour sessions

@ primarily a frequency of- 2,000 cps

PURE TONE SUMMARY (two frequency average) air: RE 67.5 LE 70

(Note: SRT and Discrimination Scores fell slightly from pre-test to post-test.)

Audiologist's comments:

" There is no attempt to explain the discrepancies between the discrimination scores of this date and those of November 9, 1972. Other testing such as Bekesy Tracings, etc. were not done because of the type of loss that he displays. For example, using Bekesy Tracing we would soon be on the maximum output of the audiometer and usable data would be lost."

Therapist's comments:

This student did very well in the actual lesson, but would slip back into his old speech habits once the lesson was over.

Parents' comments:

(written to the therapist:) "We appreciate your efforts with_____ very much but we can't honestly say any real change in speech has been noted at home."

Student started part-time employment at a local motel and restaurant establishment on April 27, 1973. This is his first work experience.

HEARING CENTER
HELP HIM HEAR

AUDIOLOGY AND SPEECH REPORT

Name Student O Sex M Age 18

Address ____ Lancaster, Pa. County Lanc. Birthdate 5/24/54

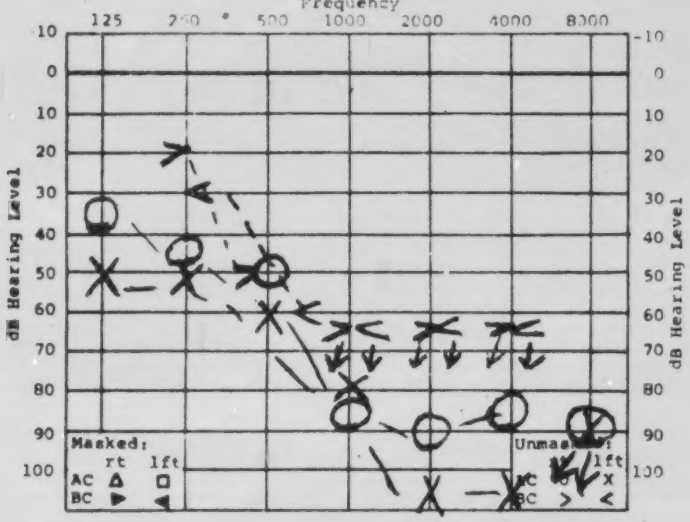
Father ____ Mother ____ Test Validity: good X fair ____ poor ____

Home Telephone ____ Referred by ____

School ____ Grade ____ Teacher ____

ANSI'69

PURE TONE AUDIOGRAM
ISO/ANSI Calibration
(Audiometer 15 cx)



RED RIGHT EAR BLUE LEFT EAR GREEN GSR

AV. HRG. LEVEL (two frequency average)
Rt. 67.5 Lft. 70 "Better Ear" 65 dB

UNAIDED SPH. REC. TESTS (dB re normal)
Phones X Field X Recorded ____ Live X
Threshold W-1 Discrimination W-22-1-A
Rt. 83 dB Rt. 44% at 90 dB
Lft. 77 dB Lft. 48% at 85 dB
Bin. 72 dB Bin. 30% at 85 dB
____ dB PB Max. 28% at 90 dB

SPH. REC. TESTS WITH AID (dB re normal)
Aid ____ Ear ____
Threshold ____ Discrimination ____
____ dB ____ % at ____ dB

LOOK AND LISTEN SCORE, TEST ____
Unaided ____ % Aided ____ %

OTHER TESTS: ____

Date: 11/9/72 Tester ____

HEARING AID EVALUATION

NAME	MODEL	RECEIVER	SETTINGS	EAR	SRT	DISCRIMINATION

REMARKS:

"Speech threshold and discrimination scores are what one might anticipate with this great a loss. It is noted that his speech discrimination scores under earphones are done at comfort listening levels as noted by Andy. Interestingly, his PB Maximum score fell to the 90% range in field listening.

A Bekesy Tracing was performed on Andy using discreet frequency and continuous tone. Pulse tone was not done on Andy as it would be impossible to show some forms of Type II all forms of Type III tracings."

HEARING CENTER BETHLEHEM

AUDIOLOGY AND SPEECH REPORT

DATE 5/21/73 TESTER _____

virtually

Name ___ Student O _____ Sex M Age 19

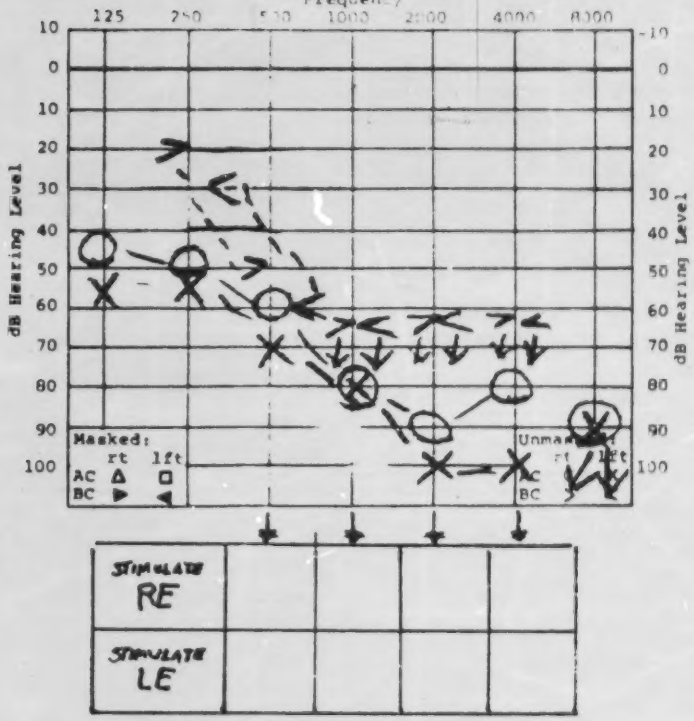
Address _ Lancaster, Pa. County Lanc. Birthdate 5/24/54

Father _____ Mother _____ good X fair ___ poor___

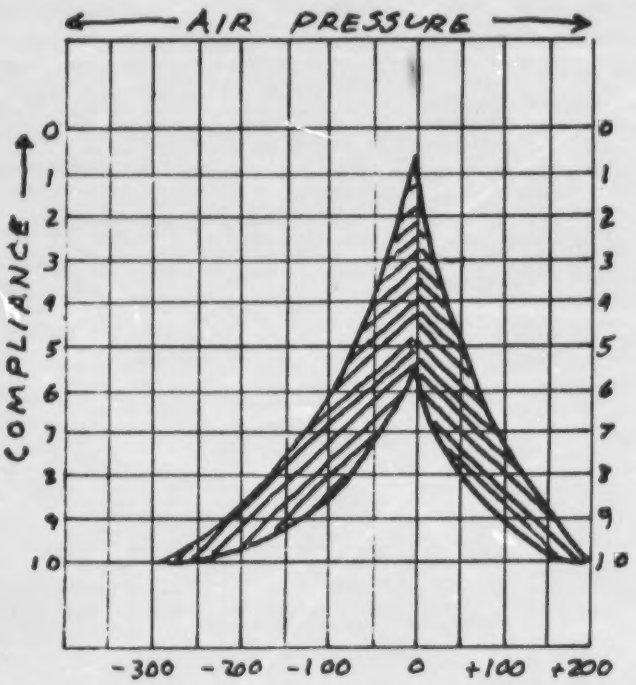
Home Telephone _____ Rererred by ___ infra- Cod● Research

School _____ Grade _____ Teacher _____

PURE TONE AUDIOGRAM
ANSI 1969 Calibration
(Audiometer 15 CX)



STAPEDIUS REFLEX (HTL)



AVG. H.G. LEVEL (two frequency average)
Rt. 70 Lft. 75 "Better Ear" 70 dB

UNAIDED SPH. REC. TESTS (dB re normal)
Pt. res ___ Field ___ Recorded ___ Live ___
Threshold W-1 Discrimination W-22-1A
Rt. 81 dB Rt. 24% at 90 dB
Lft. 74 dB Lft 32% at 85 dB
Bin. 76 dB Bin 28% at 85 dB
___ dB PB Max 26% at 90 dB

SPH. REC. TESTS WITH AID (dB re normal)
Aid _____ Ear _____
Threshold _____ Discrimination _____
_____ dB _____ % at _____ dB

LOOK AND LISTEN SCORE. TEST _____
Unaided _____ % Aided _____ %

OTHER TESTS: _____

HEARING AID EVALUATION

USE	MODEL	RECEIVER	SETTING	EAR	SRT	DISCRIM

REMARKS: "There is no attempt to explain the discrepancies between the discrimination scores of this date and those of Nov. 9, 1972."

Student P
Age- 19
Duration of Deafness- Since Birth
Loss- Severe
Aid- Worn for past 9 years in better ear
Records- Indicate student has multiple disabilities;
severe bilateral sensorineural hearing loss
motor/mental retardation
visual impairment
Number of contact hours at Adult Enrichment Center- 31 total
1/2 hr., three/wk
November to May
G primarily at a frequency of- 1,000 cps

PURE TONE SUMMARY (Three frequency average) Air: RE 90 LE 78

[Knowing that a speech threshold could be obtainable for this student, I asked the audiologist to post-test in the way that she did. Tested in a conventional way, the SRT would have been as on the pre-test. Perhaps a TIP and DIP type of test would have been appropriate.]

Therapist's comments:

"A lot of hard work for a very little gain...because of this, the gain was all that much more significant.

Parents' comments:

"They noted a slight improvement in hearing and speech, with improvement in vocabulary (new words), use of sentences rather than isolated words or phrases, clearer, more precise speech, and more vocalization."

"We have been told by friends that is communicating more and with a slight improvement in speech, with more expression and easier to understand."

"We feel is not as dependent on lip-reading."

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

Name Student P Age _____ Date Nov. 7, 1972

Address _____ Telephone _____

Referred by (Research Study) Examiner _____

PURE TONE AUDIOGRAM

Frequency

125 250 500 1000 2000 4000 8000

0 10 20 30 40 50 60 70 80 90 100 110

ISO (1964) Reference

AIR

RE: O - Red

LE: X - Blue

AIR MASKED

RE: □ - Red (LE masked _____ dB)

LE: ▽ - Blue (RE masked _____ dB)

BONE

RE: > - Red

LE: < - Blue

BONE MASKED

RE:] - Red (LE masked _____ dB)

LE: [- Blue (RE masked _____ dB)

FREE FIELD - ☐

PATIENT'S REPORT

Hearing: Constant ___ Varies ___

Hearing Today: Better ___ Same ___ Worse ___

Cold Today: Yes ___ Slight ___ No ___

Tinnitus: RE _____

LE _____

WEBER RESULTS

RE _____

LE _____

Unilat. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ___ Avg. ✓ Poor ___

TEST RELIABILITY

Good ___ Avg. ✓ Poor ___

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE 85 LE 75

Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 110 + LE 110 + Free Field 110+

DISCRIMINATION

RE — LE — Free Field —

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

No response to SRT words at 110, except that he heard them.
No speech responses to examiner

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

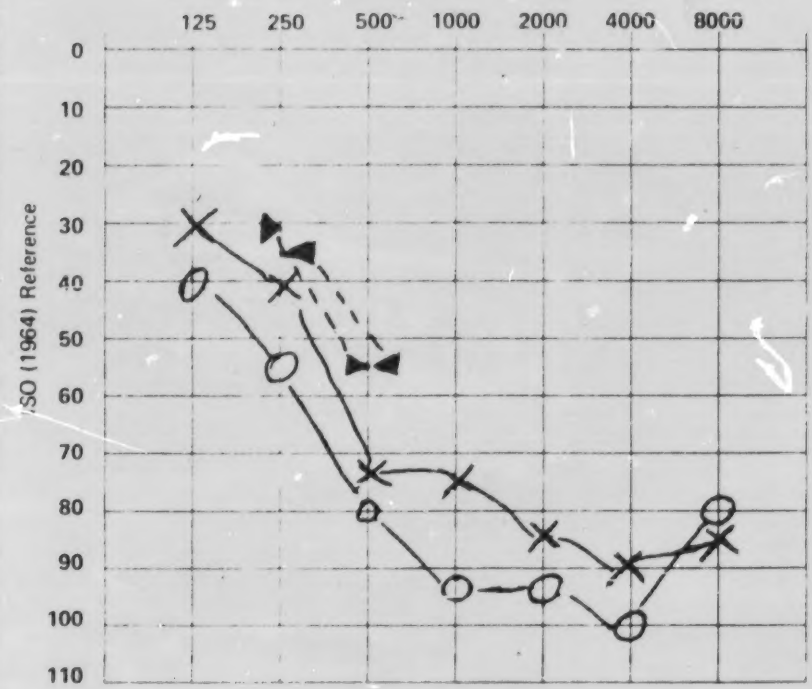
Name Student P Age 19 Date 5-22-73

Address _____ Telephone _____

Referred by Infra Code (2nd Test) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O Red

LE: X Blue

BONE

RE: > Red

LE < Blue

AIR MASKED

RE: △ Red (LE masked ____ dB)

LE: ▽ Blue (RE masked ____ dB)

BONE MASKED

RE: ▷ Red (LE masked ____ dB)

LE: ◁ Blue (RE masked ____ dB)

FREE FIELD - □

PATIENT'S REPORT

Hearing: Constant Varies

Hearing Today: Better Same Worse

Cold Today: Yes Slight No

Tinnitus: RE

LE

WEBER RESULTS

RE

LE

Unloc.

BEKESY RESULTS Type

TEST CONDITIONS

Good Ave. Poor

TEST RELIABILITY

Good Ave. Poor

PURE TONE SUMMARY

Average Loss 500 · 1000 · 2000 cps.

Air: RE 90 LE 98

Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 88 LE 80

DISCRIMINATION

RE LE

TOLERANCE LEVEL

RE LE

Type of Loss _____ Extent of Loss _____

Comments and recommendations

With standard procedures of voicing the response or writing the word, no SRT could be obtained. When the patient was given the list of words and the response was limited to 3 or 4 words, the SRT obtained by circling the response was 88dB for the Right ear and 80dB for the left ear.

Using a similar method, a discrimination score at 110dB was approximately 65% (11 out of 17 PB words correct) for RE and 76% (13 out of 17 PB words correct) for LE

Student Q
Age- 90
Duration of Deafness- Since her 50's
Loss- Presbycusis
Aid- None
Number of contact hours at Adult Enrichment Center- 8 total
1/2 hour, 1/wk.
November to May

@ primarily at a frequency of- 1,000 cps

PURE TONE SUMMARY (Three frequency average) Air: RE 68 LE 65

Therapist's comments:

"This student, despite her age, was very alert and humorous. She couldn't come very often during the winter becuase she didn't like to be out when it was cold. When she couldn't 'catch' a word she claimed it was my New England accent."

Student's comments:

"I belong to a group of Retired Citizens--I play cards every week with the same group. One of the group told me they don't think I hear any better than I ever did."

"I myself think it has improved to a point. I notice a big difference on the phone and my daughter thinks I have improved. I can hear church bells at a distance when I'm outside. The only thing I can't hear outside are the Beautiful Red Birds."

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

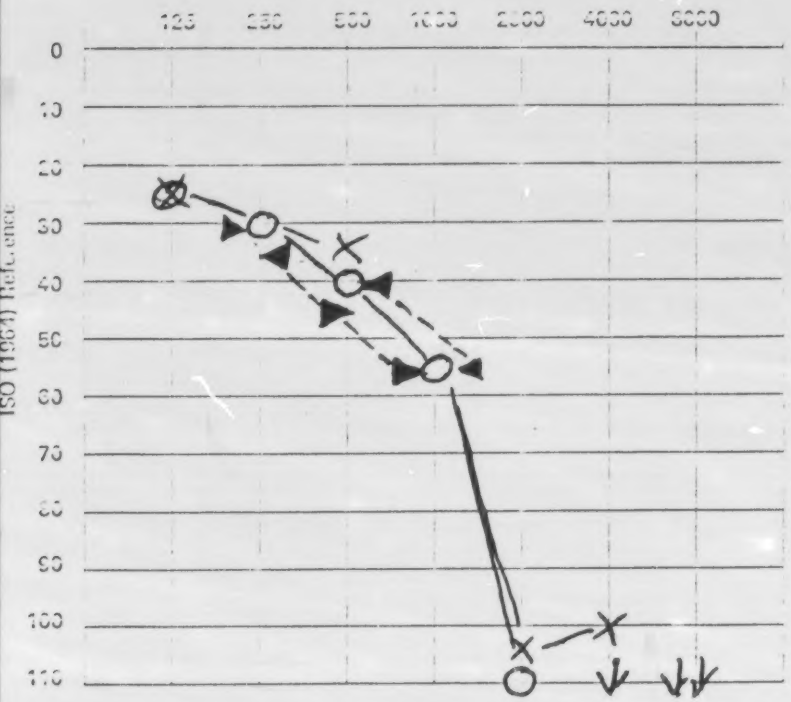
Name Student Q 89 Date Nov 7, 1972

Address _____ Telephone _____

Referred by (Research Study) Examir _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O - Red

LE: X - Blue

AIR MASKED

RE: △ - Red (LE masked _____ dB)

LE: ▽ - Blue (RE masked _____ dB)

BONE

RE: ≥ - Red

LE: ≤ - Blue

BONE MASKED

RE: ⟩ - Red (LE masked 75 dB)

LE: ⟨ - Blue (RE masked 75 dB)

FREE FIELD - □

PATIENT'S REPORT

Hearing: Constant ___ Varies ___

Hearing Today: Better ___ Same ___ Worse ___

Cold Today: Yes ___ Slight ___ No ___

Tinnitus: RE _____

LE _____

WEBER RESULTS

RE _____

LE _____

Unloc. _____

BEKESY RESULTS: Type _____

TEST CONDITIONS

Good ___ ✓ Ave. ___ Poor ___

TEST RELIABILITY

Good ___ ✓ Ave. ___ Poor ___

PURE TONE SUMMARY

Average Loss 500 - 1000 - 2000 cps.

Air: RE 68 LE 65

Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 50 LE 57 Free Field 60

DISCRIMINATION

RE 20 LE 44 Free Field 25

TOLERANCE LEVEL

RE _____ LE _____

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

Without reviewing words (i.e. first hearing of word list) her SRT was approximately 90dB. After lipreading all the words once, her SRT by a sound stimulus only was as reported above.

SPEECH AND HEARING DIVISION

AUDIOMETRIC ANALYSIS

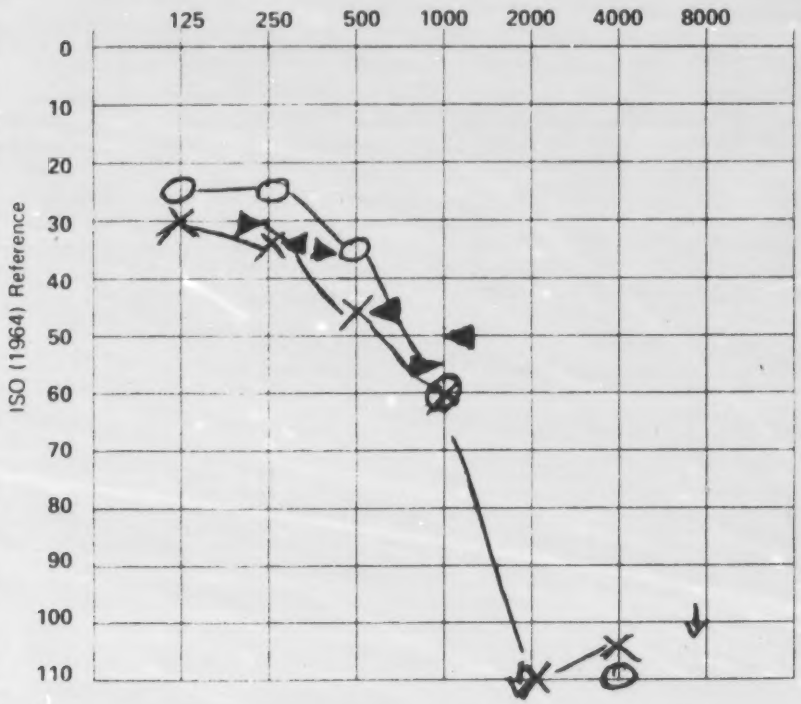
Name Student Q Age 89 Date 5-23-73

Address _____ Telephone _____

Referred by Infra Code (#2 test) Examiner _____

PURE TONE AUDIOGRAM

Frequency



AIR

RE: O · Red
LE: X · Blue

AIR MASKED

RE: Δ · Red (LE masked ____ dB)
LE: ▽ · Blue (RE masked ____ dB)

BONE

RE: > · Red
LE: < · Blue

BONE MASKED

RE: ▶ · Red (LE masked 90 dB)
LE: ◀ · Blue (RE masked 90 dB)

FREE FIELD – □

PATIENT'S REPORT

Hearing: Constant ___ Varies ___
Hearing Today: Better ___ Same ___ Worse ___
Cold Today: Yes ___ Slight ___ No ___
Tinnitus: RE ___
LE ___

WEBER RESULTS

RE ___
LE ___
Unloc. ___

BEKESY RESULTS: Type ___

TEST CONDITIONS

Good Ave. ✓ Poor

TEST RELIABILITY

Good Ave. ✓ Poor

PURE TONE SUMMARY

Average Loss 500 · 1000 · 2000 cps.

Air: RE 72 LE —
Bone: RE — LE —

SPEECH AUDIOMETRIC SUMMARY

SRT

RE 52 LE 54

DISCRIMINATION

RE 32% LE 44%

TOLERANCE LEVEL

RE ___ LE ___

Type of Loss _____ Extent of Loss _____

Comments and recommendations:

I. INFRA CODE AUDIOMETER EXAMINATIONS

II. SPEECH ANALYSIS

III. RESULTS OF EVALUATIVE QUESTIONNAIRE [Appendix H]

IV. INFORMAL 15 ITEM "SPEECH DISCRIMINATION--Fine" TEST

A NOTE ON THE EVALUATIONS

An over-all audiometric evaluation for eleven students follows in this section. Four test sets (pre and post) were done by another audiologist. For these students (D, E, K, O) the audiologist wrote a cover letter pre and post, and the pertinent information was taken out of the letter context and re-typed on the audiogram under "remarks." Of the four students that this audiologist tested, one's Speech Reception Threshold and Discrimination scores rose, and the tests on the other three remained the same.

In the SPEECH ANALYSIS SECTION, Tables 5 and 6 reflect raw scores.

While reading through the evaluations, it it important to remember the way in which the data was secured, and the measures used to analyze it.

We feel that the recommendations made by the professionals involved in the evaluations are excellent.

INFRA CODE AUDIOMETER EXAMINATIONS

[The following report, given verbatim, was written by the audiologist who tested most of the students. Eleven students (A, B, C, F, I, J, L, M, N, P, and Q) were tested pre- and post-tests.]

"These examinations were conducted in an acoustically treated room (IAC, model 1202-A) with a calibrated audiometer (Beltone, model 15-C). One audiologist conducted both examinations.

Pure tone air-conducted and bone-anducted thresholds were obtained by standard audiometric procedures. Speech reception thresholds (SRT) were assessed by live voice presentation of two-syllable words, referred to as spondees.[1] Discrimination scores were obtained by live voice presentation of phonetically balanced words (PB).[1]

---

1. Newby, Hayes A., Audiology, New York: Appleton-Century-Crofts, Incorporated, 1964, 315-325.

RESULTS

Pure tone audiometry. Pure tone thresholds obtained in the second audiometric examination (post-therapy) were very similar to the thresholds obtained in the first audiometric examination (pre-therapy). The mean thresholds obtained in the first and second examinations are presented in Table I.

TABLE I

Mean thresholds at each frequency for left and right ears.

	Frequency													
	125		250		500		1000		2000		4000		8000	
Examination	R	L	R	L	R	L	R	L	R	L	R	L	R	L
#1	54	56	66	64	73	81	84	87	102	96	97	99	83	83
#2	51	54	68	65	73	84	82	86	103	99	104	103	88	83

Speech Audiometry. Using standard audiometric procedures the SRT could be assessed for three of the eleven patients which were examined two times. The thresholds obtained in the second examinations were similar to those obtained in the first examination.

Discrimination scores could be obtained from one patient. The scores for the second examination were similar to those obtained in the first examination.

At the request of the therapist, an additional method was used in assessing the SRT of two patients.

No SRT could be obtained in the pre- or post therapy tests by standard procedures because the patients' articulation was too poor for the examiner to discriminate between various sounds. An attempt was made to obtain written responses. However, the patients could not spell the words.

In the post-therapy test an SRT was obtained by the following method: The patient was given a typed list of 25 words. He was instructed to circle the word he thought he heard. When the whole list of 25 words was used as possible responses, the patient could not respond correctly and eventually "gave up." When the choices for responding to the stimulus words were limited to 3 or 4 words, he was able to respond correctly to stimuli words above threshold. The SRT obtained by this method appears to be reliable, since it verifies the average of the pure-tone speech frequencies (500, 1000, 2000 H_z.) for both patients. It should be noted that these stimuli words had been practiced with the speech therapist prior to the post-therapy audiometric examination.

With these two patients no comparison can be made between the pre-therapy SRT and the post-therapy SRT, because different methods were used to obtain the responses.

CONCLUSIONS

On the basis of pure tone thresholds obtained by standard audiometric procedures, therapy during the Infra Code study did not appear to alter the thresholds obtained prior to the therapy sessions.

No conclusions can be drawn from the speech reception threshold scores or discrimination scores. Standard speech audiometry was not an appropriate measure for assessing the speech reception thresholds or the discrimination of speech phonemes for these patients.

RECOMMENDATIONS

It is recommended for future analysis of the effectiveness of Infra Code upon communication that more appropriate tests be administered to assess speech reception and discrimination abilities. As was evidenced with two of the patients in this study, speech reception threshold could not be adequately assessed until special response methods were devised. The patients could not respond to the speech stimuli by speech or writing. However, they were able to respond by selecting the appropriate word from printed material arranged for multiple choice responses.

It may be necessary for a therapist to work with the patients for several sessions prior to the initial audiometric examination in order to generally assess their communicative abilities. This would permit time to note signs of receptibe or expressive aphasia,

general intellectual abilities, etc. which may influence audiometric test results.

For the initial and final auditory examination, a battery of speech reception tests may be helpful in addiction to the standard pure tone threshold tests. Such a battery may include the following:

1. Speech Reception Threshold
   These thresholds may be obtained in a conventional manner, or special methods of responding may be developed. The special methods may include multiple choice responding to printed words or pictures. The tests must be appropriate for the patients abilities.
2. Discrimination Scores
   These scores must be assessed in a manner appropriate for the patient's abilities which were noted under SRT.
3. Speech reception for sentences
4. Speech reception with the aid of all available cues may be noted. With the aid of speech reading (lip reading), amplification, pictures, etc. how much information did the patient receive from a spoken paragraph?

When the tests for the assessment of speech reception and discrimination are appropriate for the abilities of each individual patient, the value of therapy with Infra Code may be assessed."

SPEECH ANALYSIS

The speech judging was done by two professionals from the local I.U. District. On a rating scale of:

3 points = Intelligible

2 points = Partially Intelligible

1 point = Unintelligible

raw scores were devised, which were then statistically analyzed, as they appear on the following Tables. These Tables refer only to the 31 item Speech Production Test, and not to the recording of the W-22 1-A word list, for which only raw scores were devised. Since there were only five test sets (pre and post) completed, due to a number of complications, these raw scores were not analyzed. However, they have been included in a separate table.

FINAL CONCLUSIONS

The speech judges reported: "Data analyzed does not indicate a significant change in the pre and post tests. The frequency of scores from the pre-test and post-test are, practically speaking, identical." However, they were very critical about the way in which we had been told to secure the data.

RECOMMENDATIONS

1. Evaluators should only have heard the responses, not the stimulus and responses paired. They should not have been aware of which test was the pre and post test.
2. Data should have been directly secured , not by evaluating tapes, which results in too many ambient distortions in machine and environment.

3. Statistical structure to evaluate data should have been established before data was secured.
4. The need for the hypothesis to be statistically analyzed is obvious.
5. An "expert" in the area of research should have been utilized.
6. Both professional and non-professional evaluators should have been utilized.
7. More variables should have been controlled--time when tests were administered, individuals administering to the same clients, same word lists used. The students' reading level should have been determined before using the Rainbow Passage.
8. Data should be analyzed in respect to time exposed to Infra-Code machine, previous training and individual differences with respect to profound deafness and residual hearing.

TABLE 2

31 ITEM SPEECH PRODUCTION (PRE) TEST

Students Rank	Test Scores X	Deviation x	Deviation Squared x^2
C	184	+60	3600
L	178	+54	2916
D	172	+48	2304
B	156	+32	1024
M	156	+32	1024
N	143	+19	361
O	136	+12	144
A	102	-24	576
P	89	-35	1225
K	82	-42	1764
J	75	-49	2401
E	74	-50	2500
F	65	-59	3481
Sums	1612= ΣX	0	23,320= Σx^2
Means	124	0.0	1793,84
Standard Deviation σ			42.36= σ

7 students (C, L, D, B, M, N, O) were above the mean score.
6 students (A, P, K, J, E, F) were below the mean score.

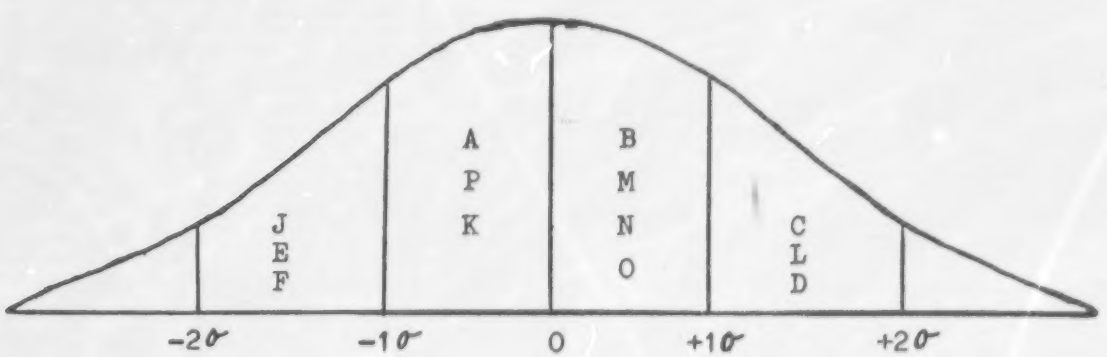
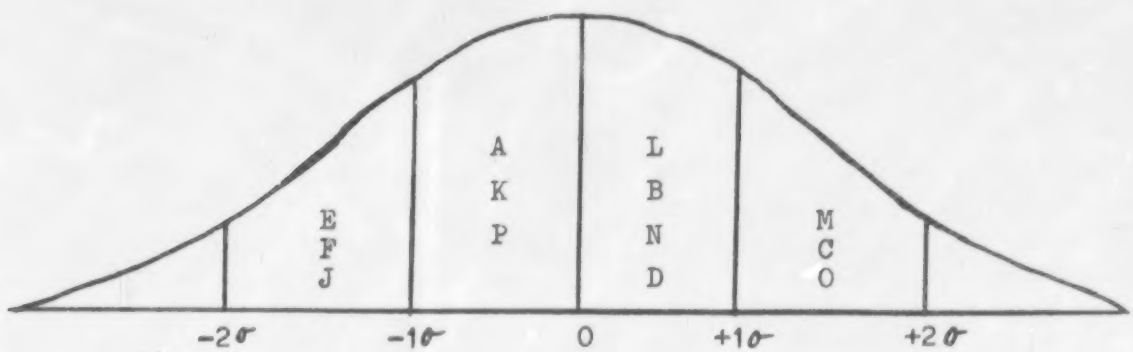


TABLE 3

31 ITEM SPEECH PRODUCTION (POST) TEST

Students Rank	Test Scores	Deviation	Deviation Squared
M	176	+47.77	2281.96
C	174	+45.77	2094.89
O	168	+39.77	1581.67
L	159	+30.77	946.79
B	154	+25.77	664.11
N	144	+15.77	248.69
D	140	+11.77	138.53
A	111	-17.23	296.87
K	106	-22.23	494.17
P	95	-33.23	1104.32
E	84	-44.23	1956.29
F	80	-48.23	2326.13
J	76	-52.23	2727.97
Sums	1667	0	16,862.39= Σx^2
Means	128.23	0	1281.72
Standard Deviation			39.39= σ

7 students (M, C, O, L, B, N, D) were above the mean score.
6 students (A, K, P, E, F, J) were below the mean score.



σ Scores → 49.45 88.84 128.23 167.62 207.01

Mean Score

TABLE 4

STUDENT STANINES FOR PRE AND POST 31 ITEM SPEECH PRODUCTION TESTS

Student	Pre-Test	Post-Test
A	4 stanine	4 stanine
B	7 stanine	7 stanine
C	8 stanine	7 stanine
D	7 stanine	6 stanine
E	3 stanine	3 stanine
F	2 stanine	3 stanine
J	3 stanine	2 stanine
K	3 stanine	3 stanine
L	7 stanine	7 stanine
M	7 stanine	7 stanine
N	6 stanine	6 stanine
O	6 stanine	7 stanine
P	3 stanine	3 stanine

TABLE 5

Raw Scores for W-22 Word List (PB) 1-A Auditory Test

*These words were given without the stimulus, scored on the same 3, 2, 1, rating scale, and were based on 50 words, unless otherwise indicated.

	Judge 1	Judge 2	Total
Student M			
Pre-test	134	131	265
Post-test	144	146	290
Student L			
Pre-test	113	121	244
Post-test	129	118	247
Student K			
Pre-test	80	68	148
Post-test	92	79	171
Student F			
Pre-test	56	53	109
Post-test	66	58	124
Student E (based on 26 words)			
Pre-test	26	26	52
Post-test	31	31	62

TABLE 6

Raw Scores: 32 Item Speech Production Test and W-22 1-A Word List

	W-22 1-A (50 words unless otherwise specified)	32 Item Test
Student M		
Pre-test	265	156
Post-test	290	176
Student L		
Pre-test	244	178
Post-test	247	159
Student K		
Pre-test	148	82
Post-test	171	106
Student F		
Pre-test	109	65
Post-test	124	80
Student E (based on 26 words)		
Pre-test	52	74
Post-test	62	84

Results of Evaluative Questionnaire [Appendix H] sent in April, 1973.

Questionnaires were sent to parents, caseworkers, a guidance counselor, and to some of the students themselves. Nineteen questionnaires were returned concerning fourteen students.

1. Do you feel you (daughter, son, or client) would participate in the program next year?

   Seven of the thirteen students still enrolled at the end of the program indicated that they would be interested in attending the program if it were held for another year. 53%

3. Have you noted any significant improvement in hearing as a result of the therapy sessions?

   Of nineteen polled on this question, eight indicated that they had noted better hearing. 42%

4. Have you noted significant improvement in speech as a result of the Research Project?

   Of eighteen polled on this question, eleven indicated that they had noted improvement in speech. 61%

5. In which of the following areas have you noted improvement:

   A. addition of new words in vocabulary

      Of eighteen polled on this question, nine indicated yes. 50%

   B. use of words rather than isolated words or sentences

      Of eighteen polled on this question, ten indicated yes. 55%

   C. clearer, more precise speech

      Of eighteen polled on this question, eleven indicated yes. 61%

   D. more vocalization--have you noticed an increase in the amount of talking? Is there less dependence on sign language or writing?

      Of eighteen polled on this question, twelve indicated yes. 66%

6. Would you recommend this program to someone else?

   Of eighteen polled on this question, seventeen said yes. 94%

7. Have you been satisfied, on the whole, with the results of the program?

   Of eighteen polled on this question, sixteen answered yes. 88%

Informal 15 Item "Speech Discrimination--Fine" test
administered at the Adult Enrichment Center

	Pre-Test	Post-Test	Voice
Student A	60%	67%	normal
Student B	41%	60%	normal
Student C	60%	54%	normal-moderately loud
Student D	34%	21%	very loud voice
Student E	60%	67%	very loud voice
Student F	0%	40%	very loud voice
Student G			
Student H			
Student I	0%	7%	very loud voice
Student J	0%	40%	very loud voice
Student K	34%	67%	very loud voice
Student L	74%	87%	normal
Student M	74%	87%	normal
Student N	47%	60%	normal
Student O	74%	74%	normal
Student P	74%	87%	normal
Student Q	86%	100%	normal

"Very Loud Voice" means sound directed by cupped hands right into the ear, or what normal hearers would interpret as a shout.

Materials Appendix A

"Skits" from the Infra-Code Children's Manual

1. Play
   The boys play ball.
   Can you play ball?

2. Bounce the ball.
   The blue ball.
   Bounce the blue ball.

3. Bounce the ball.
   Turn the boat.
   Run down the road.

4. Apple
   Pass the apple.
   Please pass the apple.

5. Chew
   Chew the chicken.
   Eat the good chicken.

6. Comb you hair.
   Brush your hair.
   Comb and brush your hair.

7. Football
   I like football.
   Go to the game.

8. Give Anne the banana.
   Anne likes the banana.
   The banana is good.

9. No No
   Don't do that.
   Don't throw the sand.

10. Pat the cat.
    Tap the toe.
    Tap the hat.

11. Plant the peas.
    The peas grow.
    Eat the peas.
    Please pass the peas.

12. Put the pipe down.
    Smoke the pipe.
    The pipe is hot.

13. Wash
    Wash your hands.
    Wash your hands and face.

Materials Appendix B

Sound Exercies - Some Examples

Dr - dry, drill, drive, drop, drag, dress, draw, drain, dragon, drama, dream, drip, drink, drug, drum, drunk, drool.

Sh - brush, wash, wish, dish, fish, shake, show, shop, shore, shall, shoes, shiny, push, mash, shower, short, cash, shell, sheep, shave, shin.

Th - mouth, throw, three, thank, thaw, thin, oath, thumb, thread, earth, think. month, death, sooth, teeth, author, thing, mother, cloth, father, they.

Ch - child, cheek, chicken, chimney, chain, couch, choose, chocolate, children, chick, chin, chair, catch, check, checker, cheese, cherry, chilly, chew, change, chipmunk, chore.

St - Stress that word.
Stay on that step.
Study the story.
The teacher was very strong.
Please stir the stew.
Go to the train station.
She was stung by a bee.
Stand on the top step.
Do you like steak?
The bread is stale.
I like to fish in the stream.

Tion - Nixon won the election.
Is your car in good condition?
Use hand-lotion if your skin is dry.
Can you answer the question?
Is it fact or fiction?
The motion of the airplane made me sick.
Read the caption under the picture.
Pay attention to the teacher.
Did she mention my name?
1/2, 1/4 are called fractions.
Did you get an invitation?
She had an operation at the hospital.
President is a high position.

Materials

Appendix C - An Example.

1. blue
2. watch
3. head
4. barn
5. chickens
6. show
7. clock
8. farm
9. baby
10. doctor
11. flower
12. woman
13. gloves
14. dress
15. desk
16. black
17. fruit
18. duck
19. toothbrush
20. dog
21. towel
22. telephone
22. table

[All of these were on separate cards with excellent pictures. They are part of the Language Master instructional device, made by Bell and Howell Co. Clinician made up short sentences to go along with the words.]

1. I have a blue car.
2. My watch has stopped.
3. My head hurts.
4. It it a big barn?
5. Do you like fried chicken?
6. I like the movie-show.
7. The clock is broken.
8. I live on a farm.
9. The baby is playing.
10. The doctor is coming.
11. He gave her some flowers.
12. She is a beautiful woman.
13. I lost my gloves.
14. She tore her dress.
15. I have a big desk in my bedroom.
16. Put it in the black bag.
17. Fruit is good to eat.
18. Look at the duck!
19. I need a new toothbrush.
20. Do you have a dog?
21. The towel is dirty.
22. Answer the telephone.
23. Don't sit on the table.

Materials Appendix D

Short, common sentences.

1. Wake up!
2. Drive slowly.
3. Please help me.
4. Stop doing that.
5. The door is locked.
6. Can you do that?
7. Wait for me.
8. I know how to do it.
9. Go away.
10. I like you.
11. I don't like cats.
12. My friend went fishing.
13. Have some tea and cookies.
14. The little boy fell.
15. The dog ran fast.
16. Don't fall!
17. Be careful.
18. The pot is on the stove.
19. Is it far away?
20. How old is he?
21. What is her name?
22. Where does he live?
23. I don't care.
24. Give it to me.
25. Don't go in there.
26. Good morning!
27. Here we go.
28. Move out of the way.
29. It's raining.
30. Here are your shoes.
31. Come here when I call you.
32. Where are you going?
33. Everything's all right.
34. That's right.
35. It's time to go.
36. Do you want to wash up?
37. I'm sorry.
38. I'll think it over.
39. Stop fooling around!
40. Time's up.
41. How do you spell your name?
42. Where is he?
43. Look out!
44. See you later.
45. It's no trouble at all.
46. The phone call is for you.
47. I have driving at night.
48. How do you know?
49. Wait just a minute.

Materials Appendix E Poems, some examples

"This Is Just to Say"
by William Carlos Williams

I have eaten
the plums
that were in
the ice box

and which
you were probably
saving
for breakfast

Forgive me
they were delicious
so sweet
and so cold.

"Robert"

When Robert should have been
at work
He was fishing in the creek
Or when the blueberries were
ripe
He'd leave his farm-work for
a week.
He'd take an hour to smoke a
pipe
Sitting with legs crossed like
a Turk.

Robert never hurried.
He never went fast.
But he caught many fish.
And he knew how to laugh.

"Sunning"
by James S. Tippett

Old dog lay in the summer sun
Much too lazy to rise and run.

He flapped an ear
At a buzzing fly.

He winked a half-opened
Sleepy eye.

He scratched himself
On an itching spot.

As he dozed on the porch
Where the sun was hot.

He whimpered a bit
From force of habit.

While he lazily dreamed
Of chasing a rabbit.

But Old Dog happily lay in the sun
Much too lazy to rise and run.

Appendix F Individualized lessons; some examples

1. My sister Brenda picks me up when she gets out of work.
   She drives me home.
   My brother Chris is too young to drive.
   My sister has a green car.
   I would like to have my own car.

2. Peppi barks and scratches.
   Scratches itching places.
   He runs and whines and whimpers -
   upstairs and downstairs.
   I bought him from my uncle,
   who raises poodles.

3. I have a small dog named Pal.
   He has very short legs.
   I like to play with Pal.
   He is black.
   If I let him, he runs after my bike.

4. I like to go to Deaf Club.
   Who is the president of the Dead Club?
   I also like to go bowling.
   When I am not working, I sometimes
   paint pictures.

5. I have an aquarium at home, filled with
   large and small fish.
   Sometimes people catch sword fish, sailfish,
   dolphins, Barracudas, Groupers and Tarpons.
   Then they stuff them and hang them on their
   walls. A man who stuffs fish is called a
   taxidermist.

Appendix G

Infra-Code Research Project
Adult Enrichment Center
322 East King St.
Lancaster, Pa. 17602

PRE-TEST

SPEECH DISCRIMINATION TEST-GROSS

1. Please tell me what you heard and how many times you heard it.
   a. I heard a DRUM, _____times.
   b. I heard a KNOCK, _____times.
   c. I heard a HORN, _____times.
2. Please tell me what you heard and how many times you heard it.
   a. I heard a DRUM, _____times.
   b. I heard a HORN, _____times.
   c. I heard a KNOCK, _____times.
3. Please tell me what you heard and how many times you heard it.
   a. I heard a KNOCK, _____times.
   b. I heard a HORN, _____times.
   c. I heard a DRUM, _____times.

- -

SPEECH DISCRIMINATION TEST* FINE

I. Circle the word that you hear. I will repeat the word if you did not hear it the first time.

1.	a.	blue	b.	new	c.	two	d. bell
2.	a.	jump	b.	map	c.	bump	d. gum
3.	a.	spoon	b.	moon	c.	spool	d. view
4.	a.	young	b.	song	c.	lung	d. girl
5.	a.	fly	b.	flea	c.	bye	d. room
6.	a.	place	b.	play	c.	grace	d. sweet
7.	a.	front	b.	frost	c.	bunk	d. door
8.	a.	drive	b.	drill	c.	five	d. done
9.	a.	part	b.	bake	c.	park	d. cup
10.	a.	small	b.	ball	c.	smell	d. snow
11.	a.	price	b.	twice	c.	prose	d. store
12.	a.	skate	b.	wait	c.	state	d. bay
13.	a.	snake	b.	wake	c.	snack	d. walk
14.	a.	grass	b.	past	c.	great	d. glow
15.	a.	watch	b.	catch	c.	wake	d. clock

Appendix H

Infra-Code Research Project
Adult Enrichment Center
322 East King St.
Lancaster, Pa. 17602

If the Infra-Code program is offered next year, it will be conducted at the Reigart School in the 500 block of East Strawberry Street (off of South Queen) and there will be a new therapist.

1. Do you feel your (daughter, son, or client) would participate in the program next year?

   yes_____ no_____

2. If yes, would you prefer to have day or evening therapy sessions?

   Day_____ Evening_____

3. Have you noted any significant improvement in hearing as a result of the Infra-Code therapy sessions?

   yes_____ no_____

   a. If yes, please examples:

4. Have you noted significant improvement in speech as a result of the Research Project?

   yes_____ no_____

5. In which of the following areas have you noted improvement:
   A. addition of new words in vocabulary yes_____ no_____
   B. use of sentences rather than isolated words or phrases yes_____ no_____
   C. clearer, more precise speech yes_____ no_____
   D. more vocalization--have you noticed an increase in the amount of talking? Is there less dependence on sign language or writing? yes_____ no_____

6. Would you recommend this program to someone else?

   yes_____ no_____

7. Have you been satisfied, on the whole, with results of the Program?

   yes_____ no_____

8. Have other relatives or friends noted any improvement in speech or hearing? (Please give examples, using the other side of this page)

9. We are <u>very</u> <u>eager</u> to have any additional comments you may wish to offer concerning the program. Please write down any impressions you may have had regarding the effect of the program--even if it seems insignificant to you. Have you noted any changes besides improvement in speech and/or hearing? (Please use other side of sheet for this question.)

10. Any suggestions?

Appendix I

31 Item-Speech Production Test

1. nice	1. a nice person
2. rest	2. very white teeth
3. snake	3. tall grass
4. sing	4. a green snake
5. price	5. a blue pool
6. blue	6. jump up
7. spoon	7. a big spoon
8. clock	8. a large truck
9. fly	9. an old clock
10. glove	10. a pretty place
11. place	11. cold ice cream
12. truck	12. drive the car
13. front	13. a white house
14. white	14. a small boy
15. part	15. sing softly
16. eggs	

Appendix J

Infra-Code Materials Sheet

PRACTICE LIST S-9

1. He will freeze in Finland.
2. The flock of sheep took flight in the night.
3. He was very frank about the situation.
4. His flesh was cut from the flogging.
5. We ate fresh frog legs with butter.
6. The sound of the flute flowed into the room.
7. The fluid flowed down the drain.
8. The fly was frightened by the frog.
9. He found the telephone off the hook.
10. Don't feed the fleas.
11. The coats and caps are at Ruth's house.
12. These shops don't sell maps.
13. He coughs when he forgets his handkerchief.
14. Thanks for the books.
15. He dates her the weeks he is free.
16. The cups are in the washer.
17. She laughed at my wife's coat.
18. Thanks for the drink.
19. Ruth's job is to record the births and deaths in this city.
20. She is always ten minutes late for dates.
21. She sits and writes checks all day.
22. He usually stops work at noon and sleeps.
23. She sits in the park every day.
24. He always walks and talks with us on Monday.
25. The girl laughs at us.

Appendix K

Infra-Code Research Project
Adult Enrichment Center
322 East King St.
Lancaster, PA 17602

Birthdate: of student: _____

Place of work and/or name of School_____

Favorite subjects in school_____

Names of favorite famous people_____

favorite books?_____

Interested in any sports?_____

Any hobbies?_____Collect anything?_____

Names and ages of brothers?_____

Names and ages of sisters?_____

Type of course or work done in school (ex. carpentry, etc.)

_____

Does son or daughter drive?_____Kind of car?_____

Names of places trips have been taken to:_____

Has student ever lived outside of Lancaster area and where?

_____

Kinds and names of pets:_____

Any musical interest?_____

Are there any particular words you would like to have_____

and me work on and/or areas of particular difficulty.

Appendix L

Client _____

Clinician _____

Date:_____

Materials:_____

Session Number:_____

Equipment Setting:_____

Observations:_____

- -

Date:_____

Materials:_____

Session Number:_____

Equipment Setting:_____

Observations:_____

- -

Date:_____

Materials:_____

Session Number:_____

Equipment Setting:_____

Observations:_____

- -

Infra-Code Research Project
Adult Enrichment Center
322 East King St.
Lancaster, PA. 17602